USER MANUAL

Applies to the following machines:

ALX 924	ALX 924 AI Pro
ALX 925	ALX 925 AI Pro
ALX 926	ALX 926 AI Pro

Fig.: ALX 924 left version
(Shipped version may deviate from the pictures)

AVERY DENNISON

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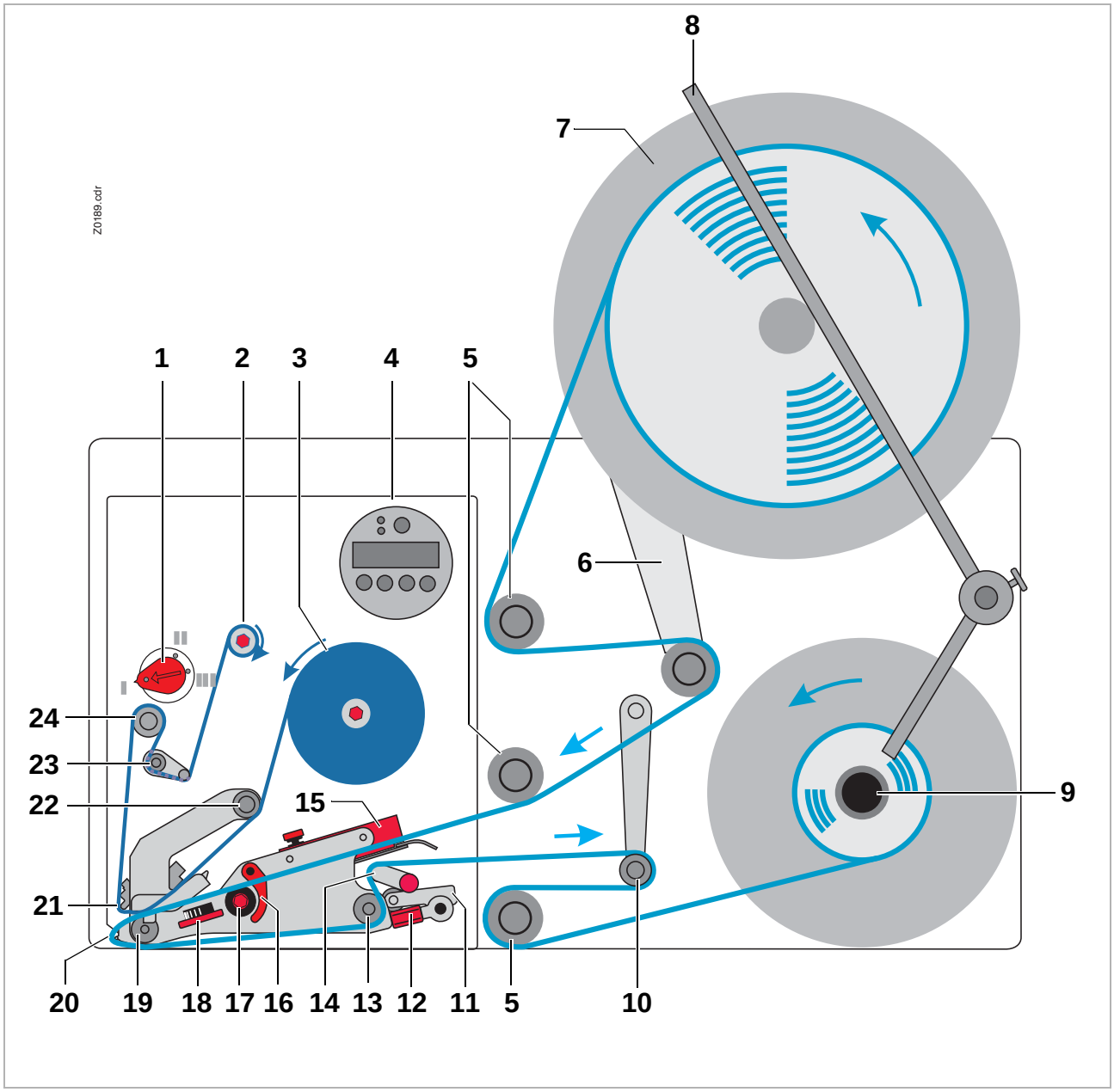
Winding pattern

The winding diagram shows the winding direction of material and ribbon through the ALX 92x.

➜ Follow this basic scheme when inserting/changing material and ribbon.

➠ Only specially trained staff to insert and change the ribbons and material.



[1] Material and ribbon path in the ALX 92x (left version).

Names of parts

No.	Name	No.	Name
1	Adjustment knob for printhead pressure	13	Feed roller
2	Ribbon rewinding mandrel	14	Deflection roll
3	Ribbon unwinding mandrel	15	Material guide
4	Operation panel	16	Opener
5	Deflection roll	17	Brake roller
6	Material dancer arm	18	Adjustment wheel for label sensor
7	Material unwinder	19	Print roller
8	Guiding rod	20	Dispensing edge
9	Backing paper rewinder	21	Printhead
10	Backing paper dancer arm	22	Ribbon deflection axle
11	Pressure roller	23	Ribbon deflection roller with stress relief
12	Lever for pressure roller	24	Ribbon roller

[Tab. 1] ALX 92x operating parts

Selecting the printing material

Thermal transfer / direct thermal printing

The ALX 92x can print onto label material using the direct thermal mode or thermal transfer mode.

Direct thermal

Direct thermal printing is done *without ribbon*. The direct thermal process requires label material with a temperature-sensitive coating. The printout is produced by applying precise bursts of heat to the material under the printhead. This changes the colour of the coating.

Thermal transfer

Thermal transfer printing is done *with* (thermal transfer) *ribbon* on “normal” label material. The printout is produced by applying precise bursts of heat to the thermal transfer ribbon under the printhead. This transfers the colour particles to the label.

Label material

The ALX 92x was developed for printing on self-adhesive stock.

Pay attention to the following factors when selecting label material:

- The roughness of the material surface
- The printhead temperature required for the colour transfer
- Size of the material roll. The following dimensions need to be checked: Outside-/inside diameter of the material roll and the material width

Material roughness

If the material is very rough, the printhead will be worn down more quickly than when using a smooth material. This is an important aspect of thermal printing. With thermal transfer printing, this doesn’t pose such a problem, because you can – and indeed should – select a ribbon that is wider than the material. This means that the printhead is protected over the entire width of the material.

Printhead temperature

High printhead temperatures can similarly cause problems. The material and the ribbon take longer to cool. As a result, the print quality may degrade – particularly at high print speeds. The printhead also wears down more quickly.

➠ The printing result is highly dependent on the right combination of label material and thermal transfer ribbon. The surface of the label material determines which thermal transfer ribbons produces the best adhesion. Unsuitable ribbons can lead to poor printing results.

❍ Further information can be found in the topic section Technical data, section “Label material”.

Thermal transfer ribbon

The following is recommended for thermal transfer ribbons:

- The back of the ribbon should be coated so that it produces no static or friction (Backcoating). If this isn't the case, the printhead may be damaged by static discharge coming off the ribbon surface.
- The ribbons need to be designed for "corner edge" printheads.
- Ribbons should be able to handle print speeds of up to 400 mm/s (16 ips).
- Size of the ribbon roll: The following dimensions need to be checked: outside/ inside diameter of the ribbon roll, ribbon width.

CAUTION! - Thermal transfer ribbons without these properties can degrade the performance of the printer and the print quality as well as damage the printhead!

Armor APR 600 (Avery part no. 2240-600-xxx) is a recommended ribbon type.

➠ The thermal transfer ribbon should only be slightly wider than the label material.

- If an *overly narrow ribbon* is used, the border of the label material interferes with the printhead – which wears it down more quickly.
- If an *overly wide ribbon* is used, creasing may occur in the ribbon. This can led to poor printing results.

❍ For more details on the permissible dimensions of ribbon rolls, refer to Technical data, "Thermal Transfer Ribbon".

Inserting label material

WARNING!
- Rotating parts can trap items and draw them in!

➜ When working on the device, do not wear loose jewellery, long sleeves, long hair, and similar.

➜ Close the devices cover before printing.

- During operation, the printhead can become hot.

➜ Be careful when touching the printhead!

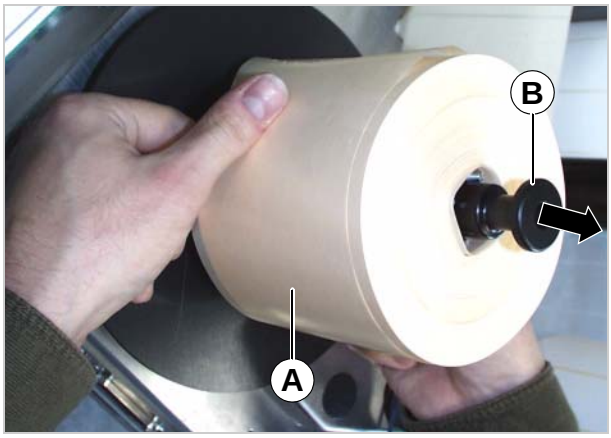
[1] Rewound backing paper on the ALX 92x (A).

Removing spent backing paper

The backing paper rewinder can exactly rewind the amount of backing paper remaining from a material roll with 300 mm diameter [2A].

CAUTION! - A backing paper roll exceeding the diameter limit can stall and damage the machine!

➜ Always remove the backing paper from the rewinder if you insert a new material roll!



[2] Removing rewound backing paper.
A Backing paper roll
B Release button

Assuming backing paper has gathered on the rewinder:

1. Pull out the release button [2B].

   The tensioning mechanism of the rewinder is slackened.

2. Remove the rewound backing paper.

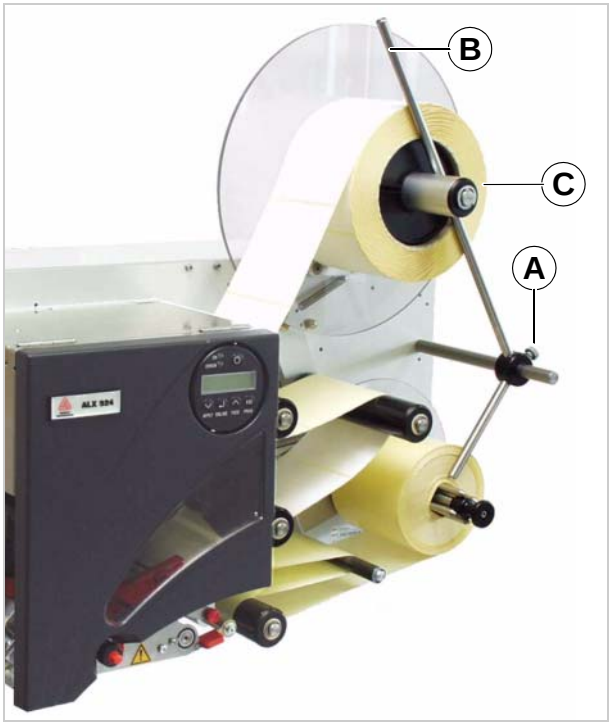
Removing glue residue

➜ If necessary, clean the following components:
- Printhead
- Dispensing plate
- Deflection rollers
- Drive roller
- Pressure rollers

❍ Follow the directions provided in topic section Maintenance and Cleaning.

Inserting a new label roll

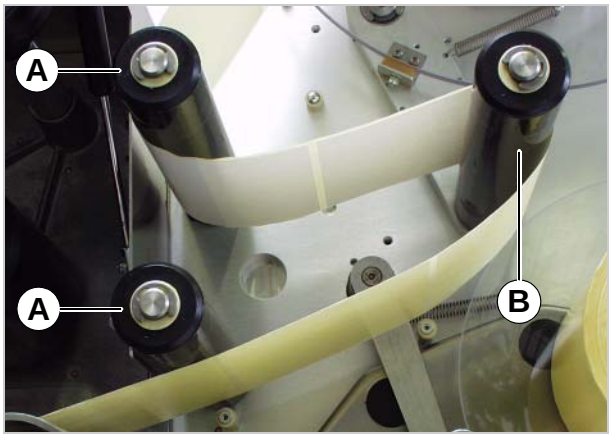
1. Turn thumb screw [3A] loose and swivel guide rod [3B] aside.
2. Push the material roll onto the unwinder [3C] with the appropriate adapter rings. The material roll should turn in an anti-clockwise direction when unwinding.
3. Swivel guide rod to the unwinder axle as illustrated [3] and shift it close to the material roll. Tighten the thumb screw again.



[3] ALX 92x with half used up label roll.

4. Lay the material around deflection rollers [4A] and dancer arm [4B].

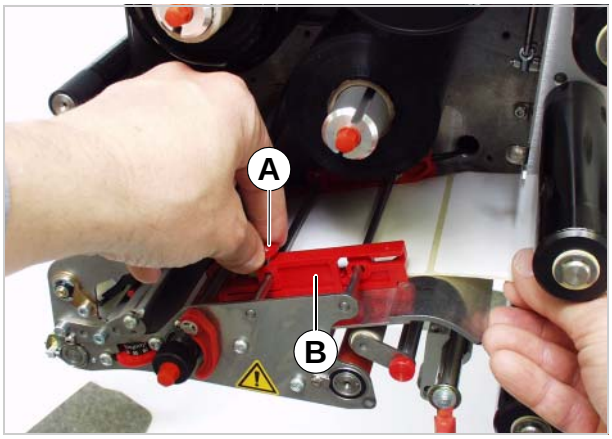
❍ Continued overleaf



[4] Threading the label material around deflection rollers (A) and dancer arm (B).

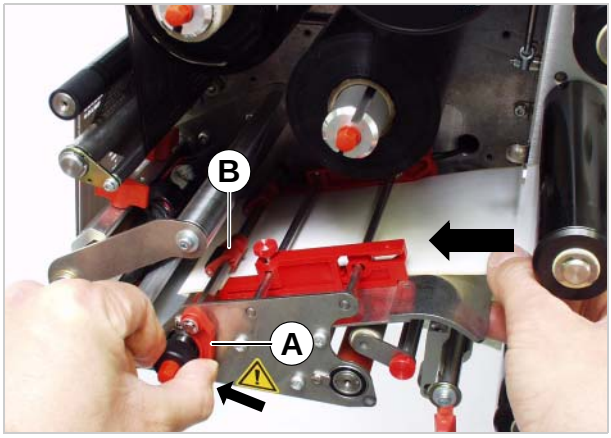
5. Open the front cover.
6. Set the material guide to the width of the label material. To do this loosen the thumb screw [5A] at the front material guide, shift the material guide [5B] crossways to the feed direction and tighten thumb screw again.

   ➠ The label material should slide easily between the material guides.



[5] Adjusting the material guide (B).

7. Press the opener [6A] to raise the contact rollers [6B]. Push the beginning of the label material through underneath the contact rollers and the print head.

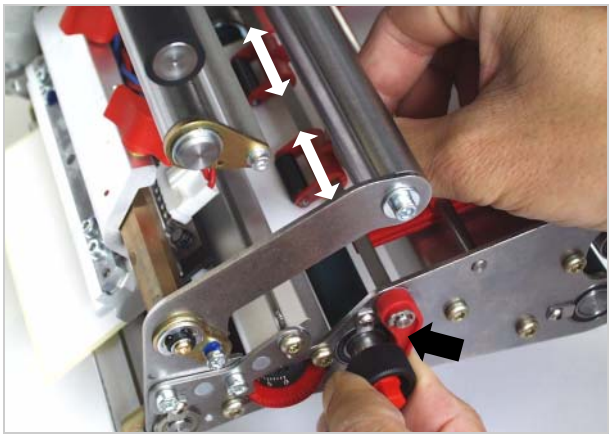


[6] Inserting the label material at the print module.

8. Position the contact rollers while pressing down the opener [7].

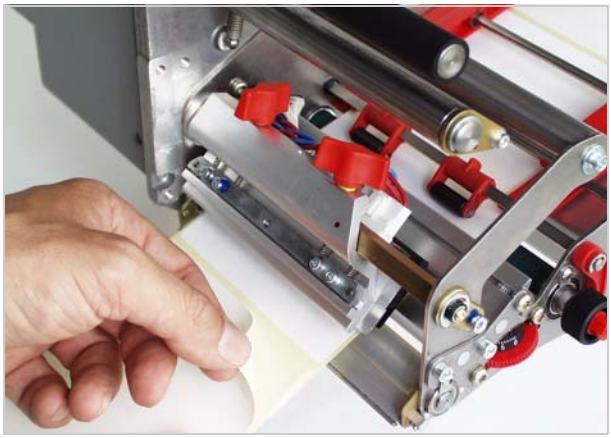
   ➠ Both contact rollers should press down the material symmetrically.

❍ Continued overleaf



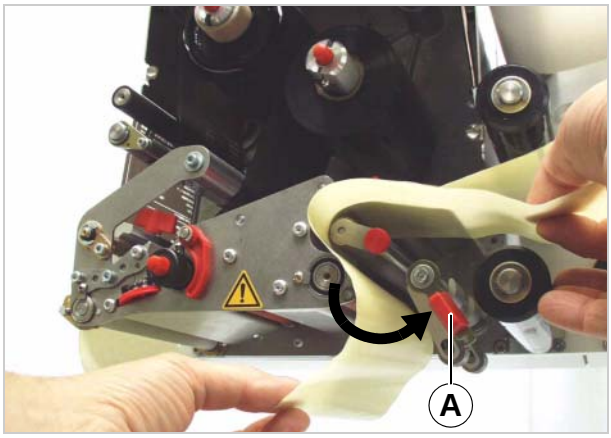
[7] Positioning the contact rollers.

9. Peel labels off the backing paper for a stretch of appr. 50 cm [8].



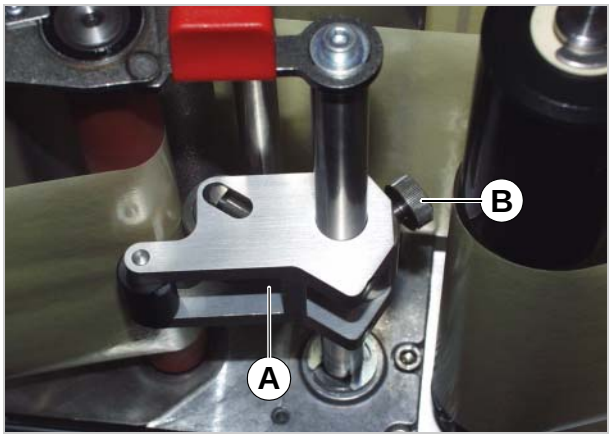
[8] Peeling some labels off .

10. Open the pressure roller lever [9A] by pressing it downwards.
11. Pull the backing paper backwards underneath the printing module and insert it as illustrated [9].



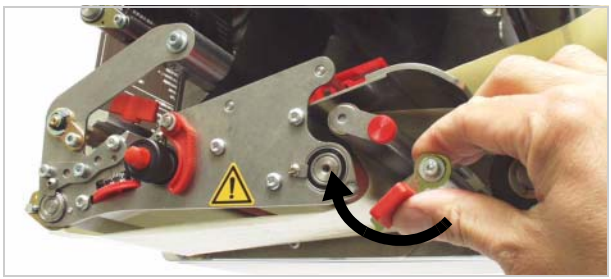
[9] Threading the backing paper underneath the printing module.

12. *ALX 925/926*: Loosen the two thumb screws [10B] at the spring-suspended blocks. Position the spring-suspended blocks [10A] in a way that the contact rolls press symmetrically on the backing paper. Retighten the thumb screws.
ALX 924: Loosen the thumb screw [10B]. Position the spring-suspended block [10A] in a way that the contact roll presses in the middle on the backing paper. Retighten the thumb screw.



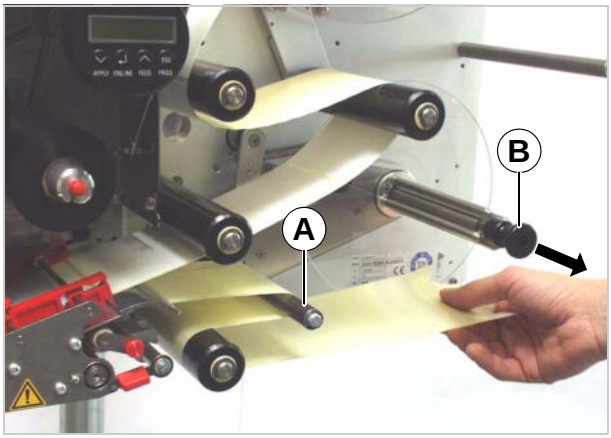
[10] Spring-suspended block (A) at a ALX 924.

13. Tighten the backing paper backwards and close the lever [11].



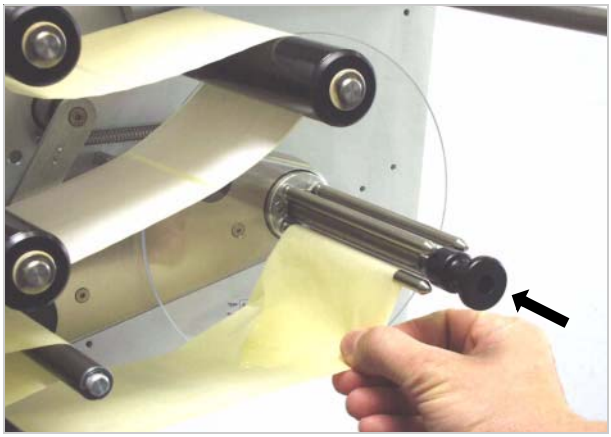
[11] Closing the pessure roller lever.

14. Thread the backing paper around dancer arm [12A] and deflection roller as illustrated [12].
15. Pull out the release button [12B].



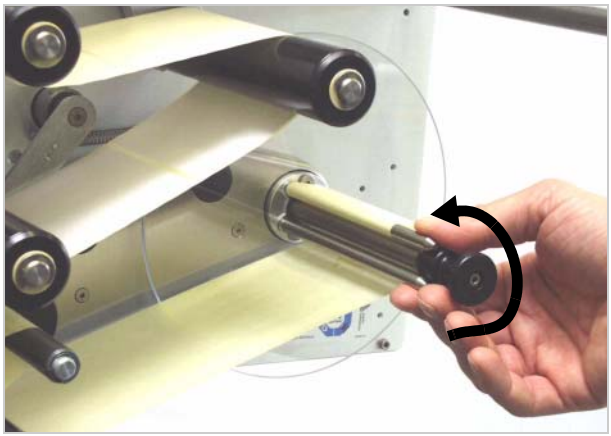
[12] Threading the backing paper around the tensioning arm (A).

16. Insert the end of the backing paper into the rewinder as illustrated [13].
17. Push in the locking knob.



[13] Threading the backing paper around the rewinder.

18. Turn the rewinder manually anti-clockwise until the backing paper is tightened [14].



[14] Tightening the backing paper.

Inserting ribbon

WARNING!

- Rotating parts can trap items and draw them in!

➜ When working on the printer, do not wear loose jewellery, long sleeves, long hair, and similar.

➜ Close the devices cover before printing.

- During operation, the printhead can become hot.

➜ Be careful when touching the printhead!

➠ Skip this section if you intend to print directly onto thermal material.

❍ For information on choosing a suitable thermal transfer ribbon, refer to section Selecting the printing material on page 4.

Removing spent ribbon

CAUTION! - If the diameter of the ribbon wound on the take-up roll becomes too great, the machine's operation will be impaired.

➜ Always remove a used ribbon before inserting a new ribbon roll.

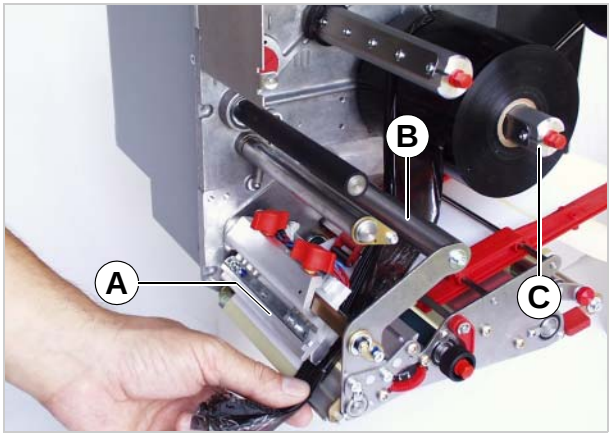
Assuming spent ribbon has gathered on the rewinding mandrel:

1. Remove the roll of used ribbon from the rewinding mandrel.
2. Pull the empty ribbon core off the unwinding mandrel and put it on the rewinding mandrel.
3. Put the ribbon roll on the unwinding mandrel.
4. Insert the ribbon as described in the following.

Inserting a new ribbon roll

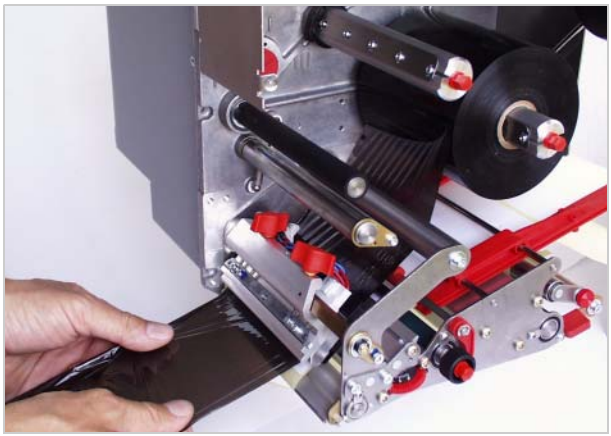
1. Open the hood.
2. Put the ribbon roll on the lower right ribbon mandrel [15C]. Put an empty take-up roll on the upper left ribbon mandrel.

   ➠ The ribbon must unwind anti-clockwise. (Only valid for ribbon rolls which have the coloured side facing inwards)
3. Guide the ribbon end under the ribbon deflection [15B] and thread through to the side of the printhead [15A].



[15] Inserting the ribbon roll onto the ribbon unwinding mandrel (C).

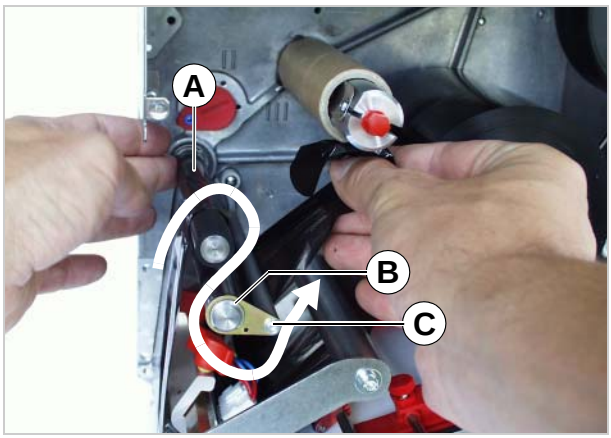
4. Pull the ribbon under the printhead from the side, then, unwinding some ribbon, smoothen it out [16].



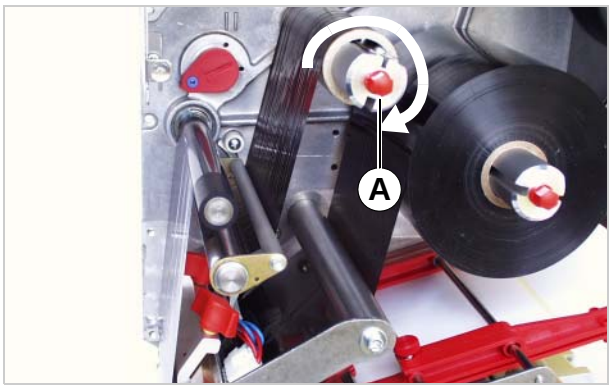
[16] Smoothening out the ribbon.

5. Draw ribbon upwards and guide it around the ribbon roller [17A], the ribbon deflection roller [17B] and the strain relief [17C] .
6. Attach the ribbon end to the empty take-up roll.

   Winding direction: clockwise [18A].



[17] **A** Ribbon roller
B Ribbon deflection roll
C Strain relief



[18] Winding direction of ribbon rewinding mandrel (A)

Settings

Ribbon tension

To achieve an optimal print result, the ribbon has to run without creases. This is achieved by correctly setting the torque for the rewinding mandrel and the braking torque for the unwinding mandrel.

The factory settings cover a wide range of different ribbon widths. Nevertheless, adjustment can be necessary if very narrow or very wide ribbons are being used.

The braking torque of the ribbon mandrels can be set by adjusting the red hexagonal plastic nuts [19A] on the ribbon mandrels. Turn clockwise to increase the torque. Caps [19B] protect the nuts against being adjusted by accident.

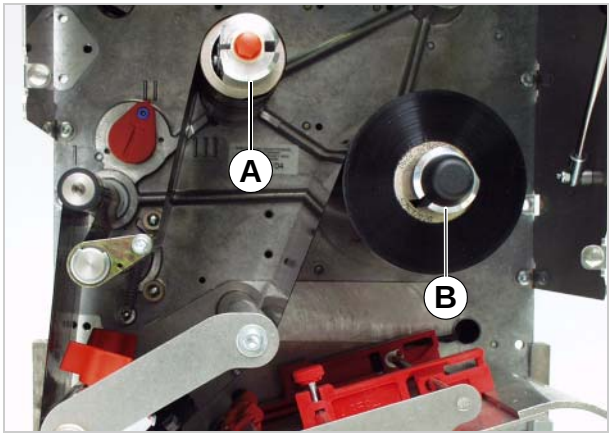
The ribbon must run evenly and free of creases between the mandrels while being fed through. The following indications can help you correct the settings:

- The ribbon is slack or in folds or winds on to the rewinding mandrel too loosely.

➜ Increase torque / braking torque (turn red hex nut clockwise).

- The ribbon clearly stretches or it tears during printing. The ribbon is not being transported adequately.

➜ Decrease torque / braking torque (turn red hex nut anti-clockwise).



[19] Ribbon mandrels on a ALX 92x.
A Ribbon rewinding mandrel (without cap)
B Ribbon unwinding mandrel (without cap)

Label sensor

The ALX 92x is equipped with a light transmission sensor for punch recognition:

Setting the label sensor

Turning the red adjustment wheel [20B] moves the sensor up to 80 mm (4“/5“ modules) or 100 mm (6“ modules) across the material. A dial [20A] displays the value.

Reading the value:

Value = punch position – 2 mm

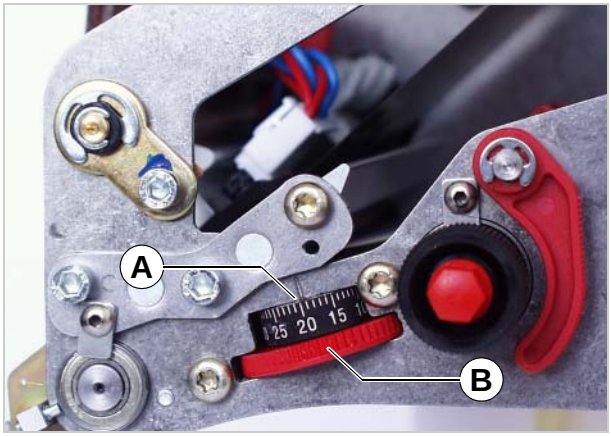
… whereby the following applies:

- *Punch position*:
  Distance of the punch from the (inner) edge of the material [21A].
- *Value*:
  Value on dial, set by rotating the red wheel.

Example: Punch centre = 11 mm from the left edge; subtracting 2 mm gives a value of 9 mm.

➜ To make the setting, turn the wheel [20B] until the desired value is aligned with the mark [20A].

➠ Round labels: To ensure in those cases, that the label start is correctly identified, a punch offset can be preset. This may be done by manually setting the printer (Parameter PRINT PARAMETERS > X - print offset) or by the appropriate control command.



[20] Setting the label sensor
A Dial
B Adjustment wheel

[21] Measuring the punch position (A).

Adjustment button for printhead pressure

The material width and / or material thickness influence the pressure applied by the thermal transfer printhead on the print roller.

There are three possible settings for pressure [23]:

I Setting for thin / narrow material
II Setting for material of medium width / thickness
III Setting for thick / broad material

Setting

The red adjustment knob [22A] [23] is located above the ribbon roller in the front plate and can be adjusted with a coin or large screwdriver.

➜ To set medium pressure, turn the arrow [23A] to position „II“ until it slots gently into place.

➜ To set a higher pressure, turn the arrow to position „III“ until it slots gently into place.

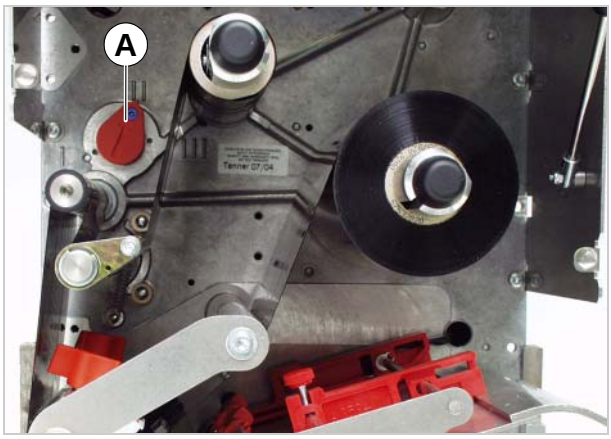
CAUTION! - Failure to set for the correct pressure causes the printhead to wear down more quickly and leads thus to a shorter service life.

➜ Always select the lightest possible pressure necessary to produce an acceptable print result.

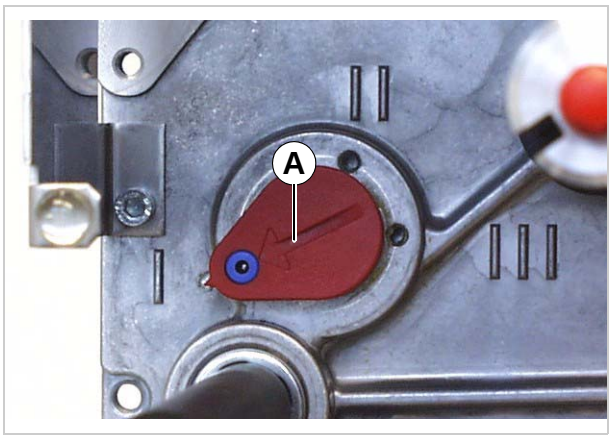
➜ Excessive pressure can lead to the premature wearout of the printhead.

Factory settings

Setting „I“, for thin / narrow material



[22] **A** Adjustment knob for the printhead pressure



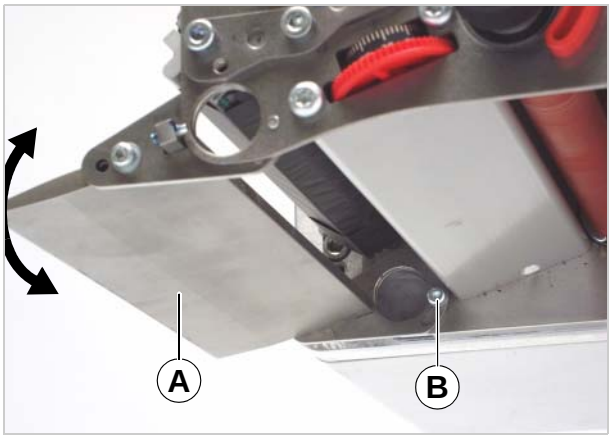
[23] **A** Adjustment knob for the printhead pressure

Dispensing edge

By inclining the dispensing edge, the dispensing position can be fine adjusted without having to change the machine position:

1. Undo the screws [24B] on both of the side mounting plates. Access the screws from beneath.

   Tool: 2.5 mm Allen key
2. Turn the dispensing edge [24A] to the desired position.
3. Tighten the screws.



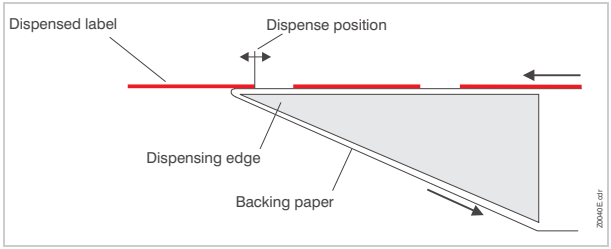
[24] Long dispensing edge (option) (feed roller disassembled for better viewing).

Dispenser parameters

Set the following parameters prior to first operating the machine.

- PRINT PARAMETERS > Dispense Mode
  Determines sequence of the printer-dispenser process (normal 1:1 mode, batch mode or true 1:1 mode)
- PRINT PARAMETERS > Dispenseposition
  Setting the adhesive edge, with which the label after dispensing adheres to the backing paper[25].
- SYSTEM PARAMETER > Start source
  Setting the trigger signal source for the printer-dispenser process (foot switch, sensor or USI)

❍ For details on how to set parameters, refer to Information on printouts and parameters in the “Using the Parameter Menu” section.



[25] Dispensing position (=home position) shown schematically.

Material Parameters

Using the following parameters, you can tell the device which kind of labelling material is supposed to be processed:

- PRINT PARAMETERS > Material type
  Sets material type (punched or endless).
- PRINT PARAMETERS > Material length
  Sets material length (measured from label start to label start, that is label length plus one gap length). Setting not relevant for endless material.
- PRINT PARAMETERS > Material width
  Sets material width.

❍ For details on how to set parameters, refer to Information on printouts and parameters in the “Using the Parameter Menu” section.

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General Notice

Maintenance by Qualified Personnel

Regular technical maintenance is required to ensure that the device is always in operating order.

Qualifications

Maintenance work should only be carried out by qualified personnel. The safety, reliability and longevity of the device depend on correct maintenance.

➠ Persons causing damage as a result of unqualified maintenance, repair and care are liable for these costs.

Manufacturer Service

For reliable maintenance, servicing, diagnosis and troubleshooting, please contact your supplier, nearest dealer or another service supplier authorized by the manufacturer.

Safety

WARNING!

Maintenance and cleaning may result in hazardous situations. Accidents can occur by mechanical or electrical means if safety instructions are not observed!

➜ Turn off the device and disconnect the power cable prior to cleaning or maintenance work!
ALX 92x AI Pro: Remove *both* power cables!

➜ On no account should liquid be allowed to enter the device!

➜ Do not use any of kind of spray directly on the printer! Moisten a cloth with a cleaning agent to clean the device!

➜ Repairs to the printer may only be carried out by a trained service technician!

Troubleshooting

Status

If device malfunctions occur, analyze the device messages first. Please read the relevant chapter contained in this documentation.

Calling for Service

If you are not authorized to carry out a diagnosis and repair of problems, please call your technician or authorized service supplier. The service personnel have the required information and replacement parts to correctly carry out the repairs.

Ordering Spare Parts

CAUTION! - Using parts that do not meet the manufacturer's high standards may damage the machine.

➜ Only use original spare parts supplied by the manufacturer.

The following information is required when ordering spare parts:

Order Specifications

- Model
- Device serial number
- Optional device configuration
- Description and part number of the spare part
- Number of parts required

Note on Cleaning

Frequency of Care

Frequent maintenance and cleaning is required to ensure that the device operates safely and provides a high level of performance. The frequency with which maintenance checks are required depends on operating and environmental conditions, the length of operation daily, and the print media used.

➠ In particular, the printhead and feed roller need to be checked regularly for paper, adhesives and ink residues.

Cleaning Agents

Dirty component	Cleaning agent	Order number
Printhead	Printhead Cleaning pen [1A]	95327
	Cleaning paper	5030
Print roller and other rubber rollers	Roller cleaner [1B]	98925
Metal deflection axis or -guide tube	Cleaning fuel	
	Label remover	90073
Plastic deflection rollers (ALX 92x)	Cleaning fuel	
External parts	Common neutral cleaning liquid	

[Tab. 1] Recommended cleaning agents.

CAUTION! - Keep to the following rules to avoid damaging the device:

➜ Do not use any cleaning agent that could damage or destroy the resin surface, labelling, display, nameplates, electrical components, etc.

➜ Do not use any cleaning agents that are abrasive or damaging to plastics. Avoid acid or alkaline solutions.

[1] Printhead cleaning pen (A) and roller cleaner (B).

Printhead

General Notes

The unit consisting of the thermal head [2A] and thermal head holder [2C] will henceforth be referred to as the printhead [1].

CAUTION! - The position of the thermal head on the thermal head holder is set at the factory with optical aids.

➜ For this reason, always completely replace misaligned printheads and if necessary send them in for resetting.

CAUTION! - Electrostatic discharges or contact with sharps edges can damage the printhead.

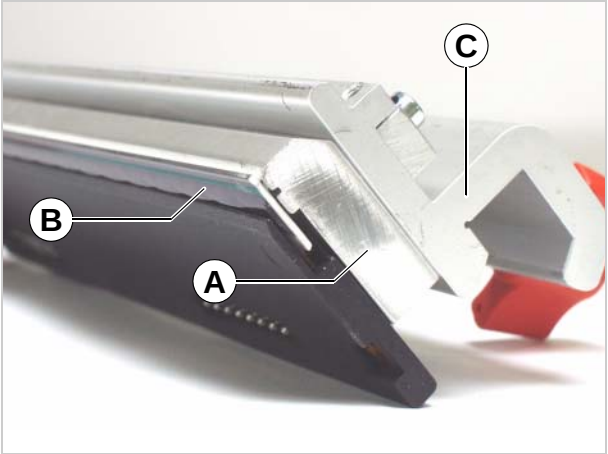
➜ Protect the printhead from electrostatic discharges when performing maintenance work or cleaning.

➜ Avoid touching the thermal edge [2B] printhead with bare hands as much as possible.

➜ Do not allow sharp objects to come into contact with the termal edge.

If you do not have any professional ESD protection equipment (ESD wristband, ESD shoes, …), place one hand on an earthed object near to you (e.g. tap or radiator) before touching the device to discharge any static charge your body may be carrying.

[1] Printhead



[2] Printhead side view
A Thermal head
B Thermal edge
C Thermal head holder

Cleaning the printhead

WARNING! - During operation, the printhead can become hot.

➜ Care should be taken when touching the printhead!

Impurities such as lint and colour particles from the thermal transfer ribbon may collect on the printhead during printing. This can degrade the printed image considerably. Noticeable effects:

- Differing contrast on the labels
- Light stripes in the printing direction

➠ Clean the printhead and the print roller regularly, and always clean them before inserting a new ribbon. When using direct thermal mode, always clean them before inserting a new material roll.

Cleaning the print roller: See chapter Rubber rollers on page 11.

Preparing the printhead

1. Switch off the device.
2. Pull out the mains plug.
3. Remove material and ribbon.
4. Unscrew the two wing screws [3A], until the printhead can be swivelled upwards.

   ➠ Before swivelling the printhead upwards, shift it approx. 1 cm to the middle of the axle.

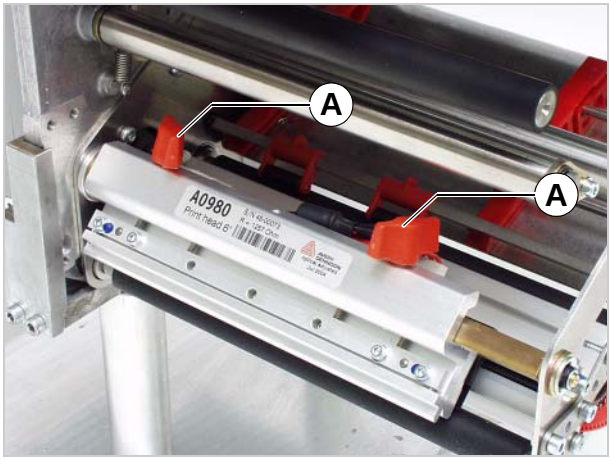
   ➠ Mark the printhead position on the axle, before moving it.

Cleaning with a cleaning pen

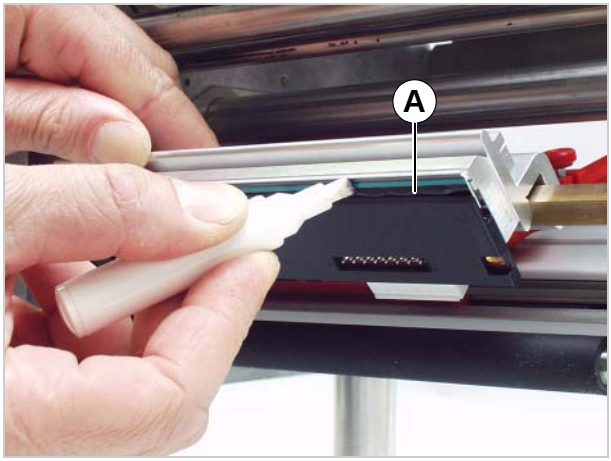
➜ Run the pen over the thermal transfer head a few times.

Cleaning with a cleaning stripe

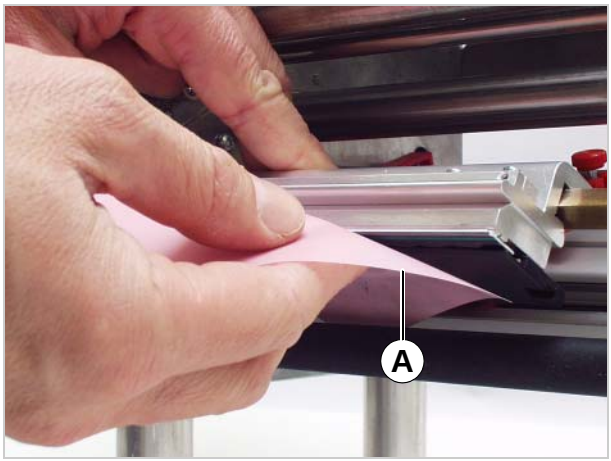
➜ Use the rough side of the cleaning strip [5A] to wipe a few times along the thermal edge. Press the stripe slightly to the thermal edge, while doing so.



[3] Printhead of a PEM-06.
A Thumb screws



[4] Cleaning the printhead with a cleaning pen.
A Thermal edge



[5] Druckkopf reinigen mit dem Reinigungsstreifen.

Cleaning with alcohol-based solvents

WARNING!

Solvents are highly flammable.

➜ Always comply with the safety guidelines for using flammable liquids.

➜ Do not smoke while servicing the device.

1. Moisten a lint-free cloth with solvent and wipe the thermal transfer printhead with it.
2. After cleaning, return the print head mounting to its old position and retighten the thumb screws.

   ➠ Press the thumb screw on the tapered edge of the square axle and ensure the exact positioning of the print head mounting on the axle.

   ➠ Pay attention to the position of the print head in relation to the edge of the label.

   Factory set printhead position: Flush against the inner black plastic plug.
3. Before switching on the device, check whether the printhead cable is still properly connected. If this is not the case, plug in the cable correctly.

[6] Cleaning the printhead with an alcohol-based solvent.

Changing the print head

The printhead can only be replaced completely as illustrated [7].

WARNING! - During operation, the printhead can become hot.

➜ Care should be taken when touching the printhead!

1. Switch off the device.
2. Pull out the mains plug.
3. Remove material and ribbon.
4. Pull out both plugs from the printhead [8].

   ➠ Wait at least 3 minutes after switching off the device before removing the print head cable from the print head. Mark the position of an axially adjusted print head.
5. Unscrew both wing screws on the printhead until the printhead can be removed from the contact shaft [9].
6. To install, move the new printhead to the old position and tighten the wing screws.

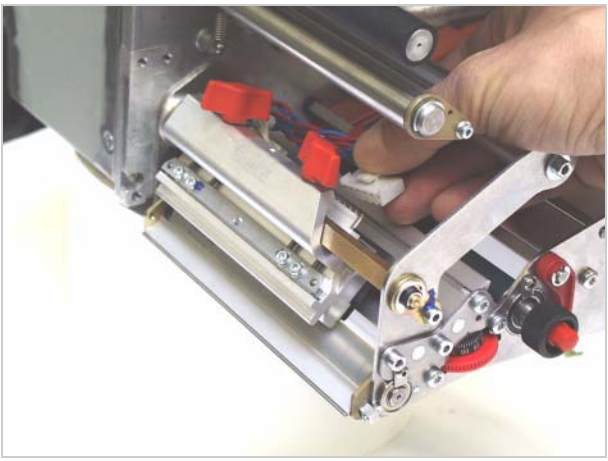
   Printhead factory setting: Flush against the inner black plastic plug.

   ➠ Before doing this make a note of the resistance value of the print head (read off from the print head). When placing the print head on the print head mounting, ensure that the print head is lying flat.

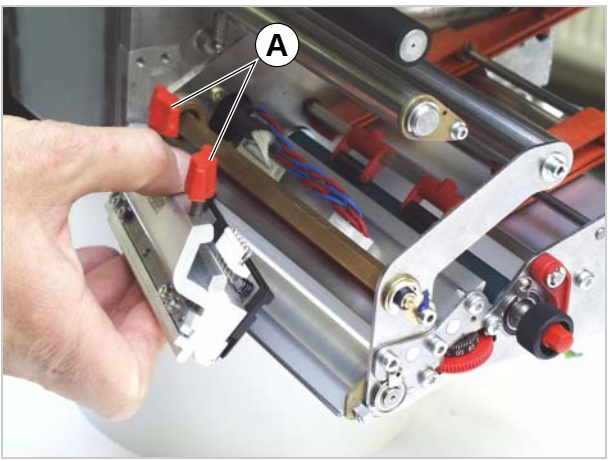
   ➠ The wing screws must press on the tapered edge of the square axle.

   ➠ Pay attention to the position of the print head in relation to the edge of the label.
7. Plug the printhead cable back into the print head.

[7] Complete printhead.



[8] Remove both cables from the printhead (Fig.: DPM).



[9] Remove the wing screws (A) and remove the printhead (Fig.: DPM)

8. The resistance value of every new print head must be entered after putting the printer into operation. Use the parameter SYSTEM PARAMETERS > Head resistance.

   ➠ The resistance value can be found on a label on the printhead [10 circle].

> CAUTION!
>
> Entering a false resistance can damage the printhead!

For additional information refer to the service manual, topic section „Service Mechanics“, chapter Replacing the printhead 🗋 on page 68.

[10] The printhead resistance can be found on a label on the printhead itself.

Checking the print head

Both, DPM/PEM and ALX 92x are equipped with a test function, which tests the functionality of every single dot (dot check).

There are two different modes of operation with three different possibilities to start a dot check:

Dot check modes	Call by
Automatic dot check	Automatic execution after powering on or in printing pauses. To activate the automatic, refer to parameter SYSTEM PARAMETERS > Autom. dot check
	Easy Plug: Add an optional D to the obligatory #ER command (-> #ERD) to trigger a dot check at the end of the print job.
Dot check on demand	Dot check with subsequent status report that informs about the number and the location of the defective dots. Parameter .SERVICE FUNCTIONS > Head dot test.
	Dot check with subsequent printing of a pattern which visualizes the test result. Parameter PRINT INFO > Dottest punched.
	In Off-line mode by pressing the Apply+Feed buttons. Equals the call by parameter „Head dot test“, but without the status report. Defective dots are displayed by status messages.

[Tab. 1] Starting a dot check.

Display message

Display of a detected defective dot:

```
Status:                5103
      Dot defective
```

If all dots are faultless, no display message appears.

If the status message appears, the current print job is stopped.

Duration

All five ways of dot checking test the entire printhead width. Therefore, the test procedure may take from 10 s up to several minutes time (the wider the printhead is and the more dots are defective, the longer).

CAUTION! - Disregard of the following may cause the printer firmware to hang up:

➜ Never change the setting of a dot check parameter, during a dot check is running!

Abortion

➠ Only if it really cannot be avoided, cancel the dot check by a reset (press Feed+Cut+Online button)!

CAUTION! - Disregard of the following can destroy single dots of the print head:

➜ Never cancel a dot test by switching off the printer!

Rubber rollers

Feed / Print roller

All rubber rollers contained in the DPM/PEM and in the ALX 92x can be cleaned from the bottom side of the machine without any disassembly. The ribbon roller is easily accessible by opening the hood and removing the ribbon.

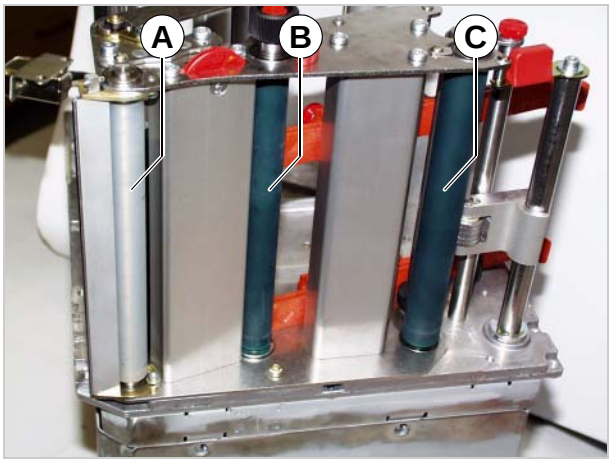
1. Switch off the device.
2. Pull out the mains plug.
3. Remove material and/or ribbon.
4. Clean the print roller with a dust-free cloth and roller cleaner.

CAUTION! - Disregarding the following may damage the roller:

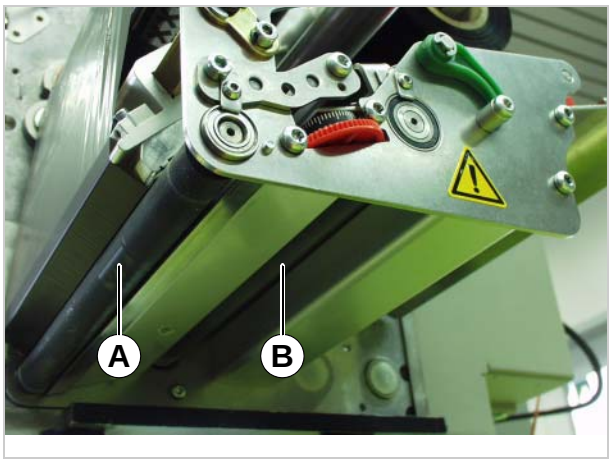
➜ Never use knives or sharp-edged objects to clean the rollers!

➠ To access the print roller from the front side, the printhead can be disassembled:

Refer to chapter Changing the print head 🗋 on page 8 to learn how to do this.



[11] *DPM/ALX 92x*: Print- (A), brake- (B) and feed roller (C) are accessible from the devices bottom side.



[12] *PEM*: Print- (A) and feed roller (B) looked at from the bottom side.

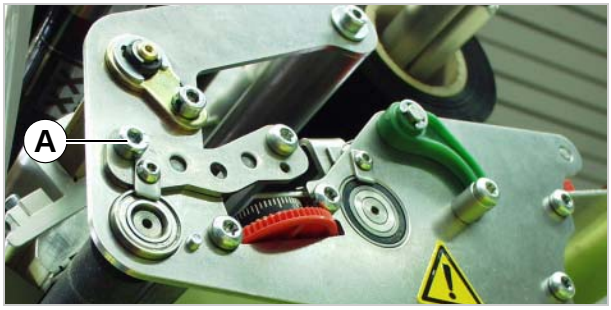
(PEM) Pressure roller

WARNING! - During operation, the printhead can become hot.

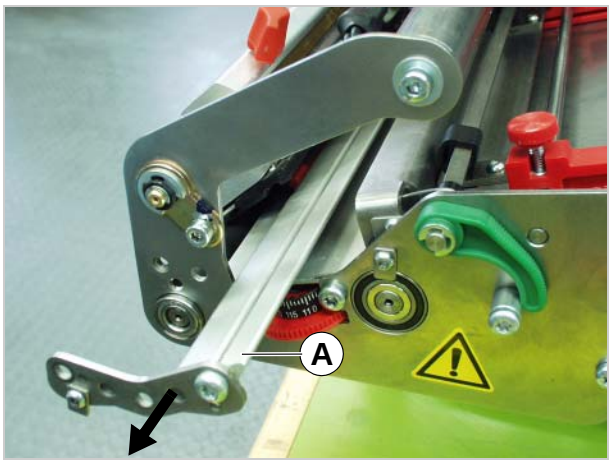
➜ Care should be taken when touching the printhead!

1. Switch off the device.
2. Pull out the mains plug.
3. Remove material.
4. Remove screw [13A] (use a 3 mm allen key).
5. Remove the guiding section [14A] to the side.
6. If the printhead is neither positioned completely to the right nor the left, mark the position of the printhead on the axle.
7. Loosen both wing screws [15A] at the printhead.
8. Remove the printhead [15] from the axle.
9. Moisten a dust-free cloth with roller cleaner (part no. 98925) and wipe the pressure roller with it. Gradually rotate the roller until it is completely clean.
10. Remount the printhead into its former position.
11. Reassemble the guiding section and fix it with the screw.

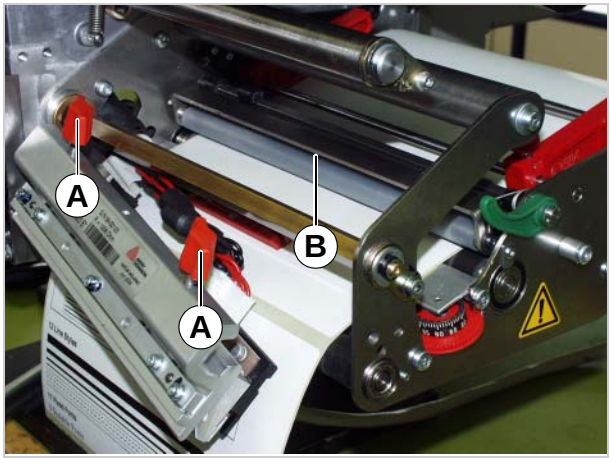
    ➠ Make sure to feed the right one of the two guiding noses [16A] into the groove at the guiding section.



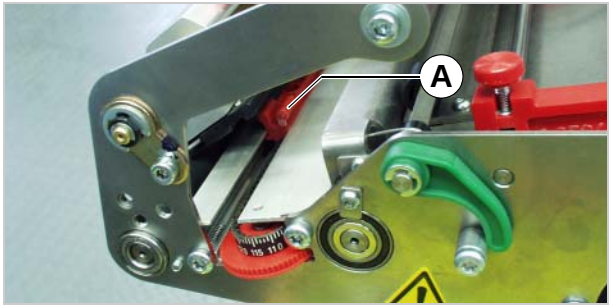
[13] Fixing screw (B) of the guiding section



[14] Guiding section (A)



[15] Printhead removed from the printhead axle
A Wing screws
B Pressure roller



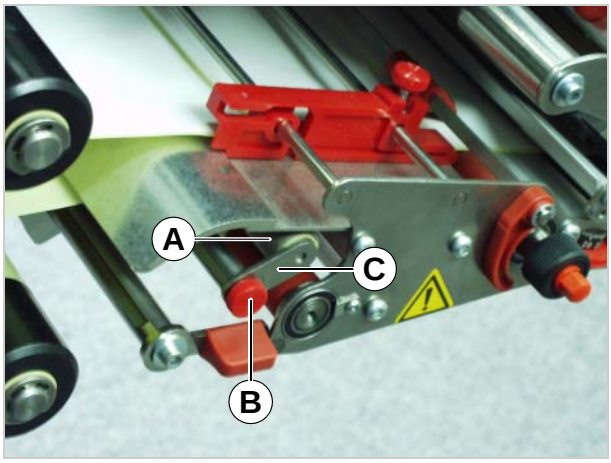
[16] Guiding noses (A) at the photoelectric switch fork

Deflection rollers

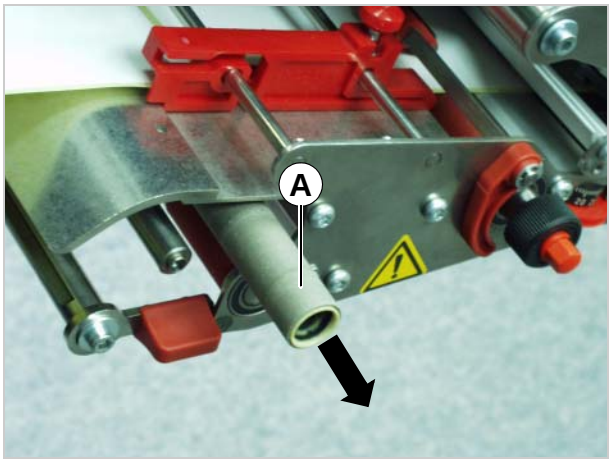
(DPM/ALX) Backing paper deflection roller

Clean the material deflection roller, if it is dirty with residues of adhesive, labels or something similar.

1. Switch off the device.
2. Pull out the mains plug.
3. Remove material.
4. Screw out the thumb screw [17B] and take off the locking plate [17C].
5. Pull the deflecting roller [18A] off its axle.
6. Clean the deflecting roller using cleaning fuel or adhesive removing solvent, depending on the degree of pollution.
7. Put the deflecting roller back on the axle; apply locking plate and thumb screw.



[17] Backing paper deflection roller at the DPMs printing module
A Deflection roller
B Thumb screw
C Locking plate

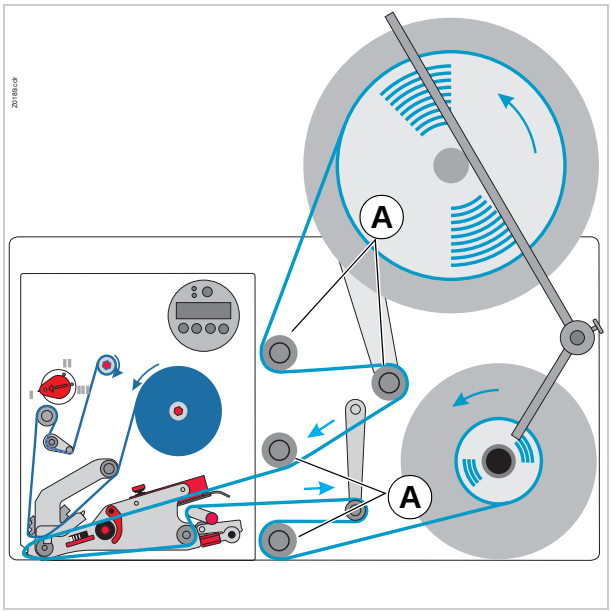


[18] Pull off the deflection roller (A).

(ALX) Material deflection rollers

All of the material deflection rollers [19A] at the ALX 92x should be cleaned regularly in order to not disturb material feeding and with it the printing quality.

➜ Wipe the rollers with a clean cloth and cleaning fuel.



[19] Material deflection rollers (A) at the ALX 92x.

Photoelectric switches

The photoelectric switches must be cleaned of material and dust particles at regular intervals depending on the materials used.

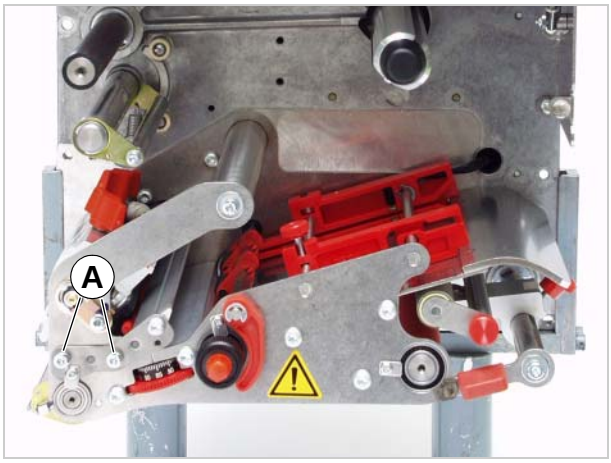
Cleaning the gap photoelectric switch

Dismantle the guiding section first, to get proper access to the gap photoelectric switch:

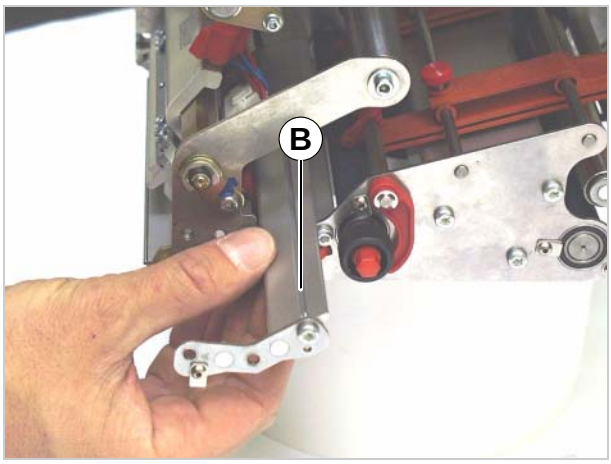
1. Switch off the device.
2. Pull out the mains plug.
3. Remove material.
4. Unscrew both screws [20A] (using a 3 mm allen key).

   ➠ At the PEM, there is only one fixing screw to remove.
5. Slide out the guiding section [21B] to the side.

Continued overleaf.



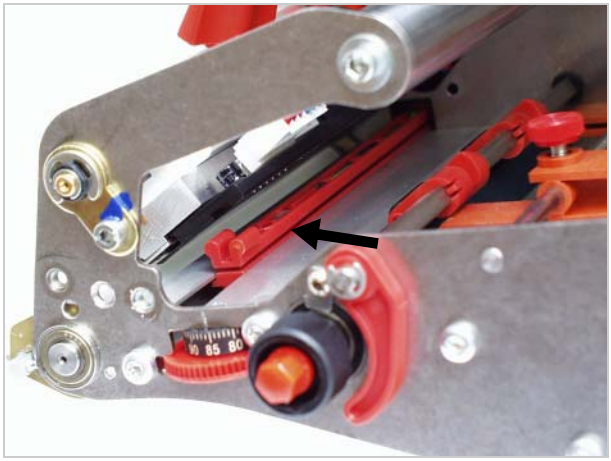
[20] Mounting bolts (A) of the guiding section (Fig.: DPM).



[21] Sliding out the guiding section (B) (Fig.: DPM).

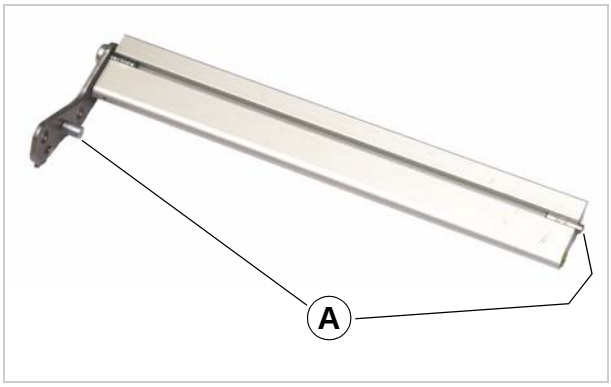
6. Clean the gap photoelectric switch with compressed air (compressed air can be ordered in a can as an accessory) [22].

   ➠ Additionally clean it using cleaning fuel and a dust-free cloth if it is particularly dirty.

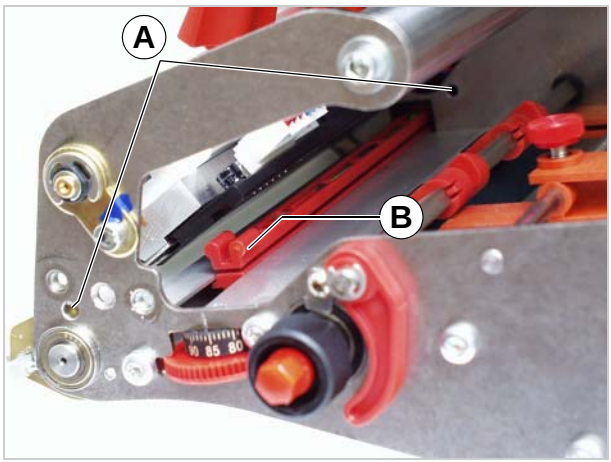


[22] Blow compressed air at this point (arrow) to clean the photoelectric switch.

7. Assembly: Feed the right one of the two cylindrical shapes [24B] into the groove at the guiding profile. Both steel pins [23A] must fit into the holes [24A]! Replace the screws and tighten them.



[23] Guiding section disassembled.
A Steel pins



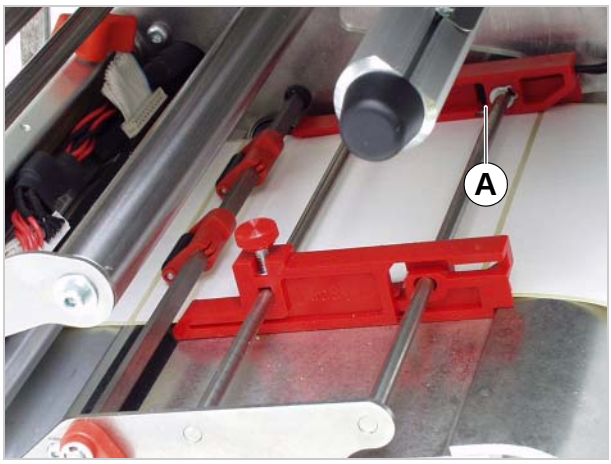
[24] Printmodule DPM
A Holes, into which the steel pins must fit (Fig.: DPM).
B Cylindrical shapes at the gap photoelectric switch.

Cleaning the material end photoelectric switch

The material end photoelectric switch [25A] is located on the inner red material feed on the print module. It is necessary to regularly clean the photoelectric switch of material and dust particles. The cleaning intervals are dependent on the materials being used.

➜ Clean the material end photoelectric switch with compressed air (compressed air can be ordered in a can as an accessory).

➠ Additionally clean it using cleaning fuel and a dust-free cloth if it is particularly dirty.



[25] Material end photoelectric switch (A) on the inner material feed.

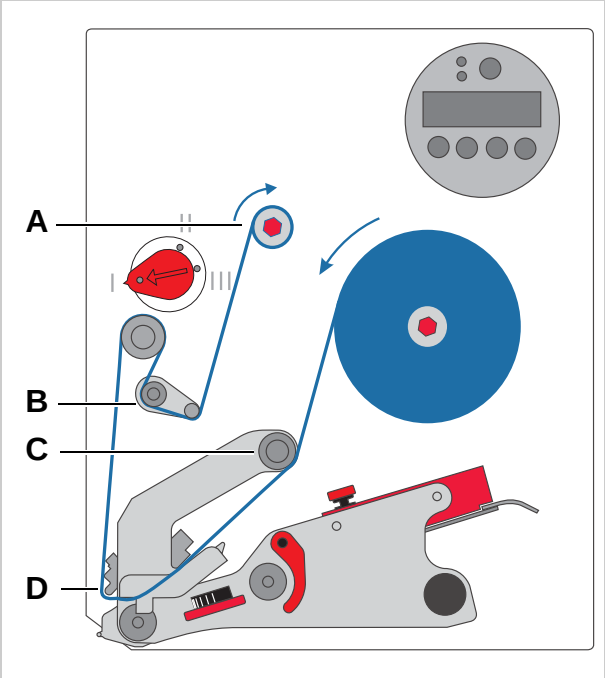
Cleaning the foil path

Parts, which contact the foil, must be cleaned regularly. The following intervals should be considered:

- weekly

  or

- after 5000 m of foil



[26] Parts, which may be soiled with foil residue:
- **A** Ribbon roller
- **B** Deflection roller + stress relief
- **C** Deflectioin axle
- **D** Deflection nose at the printhead

Replacing the dust filter liner

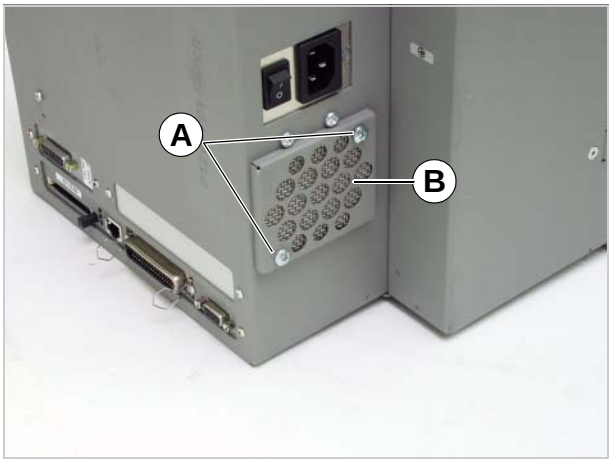
CAUTION! - An exhausted filter liner can cause the power supply to overheat and the device to break down.

➜ Replace the filter liner regularly, at least in monthly intervals.

DPM/PEM

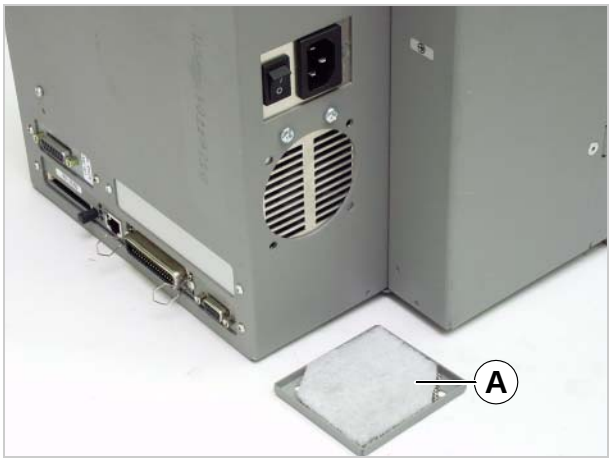
Tool: Medium size philips screwdriver.

1. Remove the screws [27A] and the filter housing [27B].



[27] Dust filter at the DPM/PEM (B).

2. Replace the liner [28A] (part number for one liner: A2236).
3. Remount the filter housing.



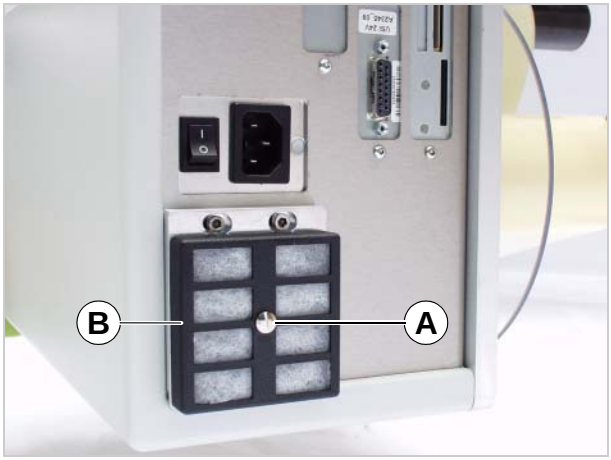
[28] Filter liner (A).

ALX

➠ The dust filter is an optional accessory.

Tool: Screwdriver.

1. Turn the screw [29A] by a quarter-turn. Remove the cover [29B].
2. Replace the liner (part number for 5 liners: A2581).
3. Reassemble the filter housing cover. Turn the screw [29A] by a quarter-turn.



[29] Dust filter at the ALX 92x

[30] Filter housing removed.

(ALX 92x AI Pro) Fuse replacement

Tool: Screwdriver, medium size

Fuse type: T2AH/250 V

(Article number: A8676)

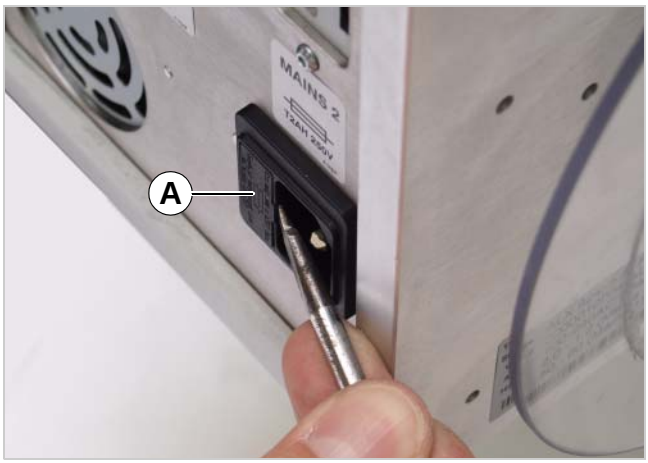
WARNING!

The device operates using mains voltage! Touching electrically live parts may expose you to hazardous electrical currents and may lead to burns.

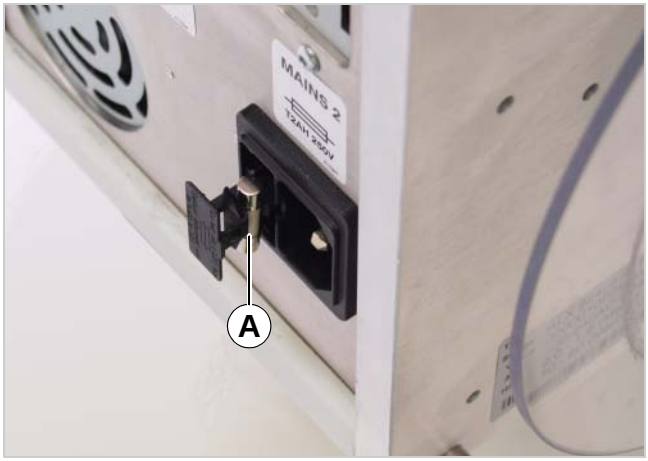
The device can only be completely disconnected by unplugging *both* power cables.

➜ Switch off the device and unplug *both* power cables before removing the fuse insert.

1. Switch off the device. Remove *both* power plugs.
2. Remove the fuse insert [31A] to the left of the power connector.
3. Remove the fuse [32A] from the insert and replace it by a new one.



[31] Fuse insert at power connector „Mains 2“.



[32] Fuse insert removed.

Technical Data

Device types, use 2
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Device types, use

General Notes

Print width

DPM, PEM and ALX 92x are available in two housing widths and three print width (max. 106, 127 or 160 mm). Machines with 106 or 127 mm print width come in a narrow housing, those with 160 mm print width come in a wider housing.

Resolution

300 dpi

Print speed

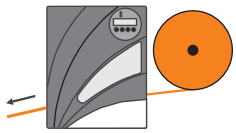
Machines with 106/127 mm print width: up to 400 mm/s

Machines with 160 mm print width: up to 300 mm/s

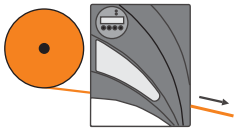
RH/LH

DPM and ALX 92x are both available in a righthand (RH) as well as a lefthand (LH) version. Distinguishing feature:

- LH-version: Printed Labels leave the machine on the lefthand side (line of vision towards the display).



- RH-version: Printed Labels leave the machine on the righthand side (line of vision towards the display).



DPM

- Dispensing Printing Module (DPM)
- Monotone printing on labelling materials for thermal and thermotransfer processes
- Requires labelling roll material
- Dispensing of the printed labels
- Mounting into the cutout of an appropriate plate

PEM

- Print Engine Module (PEM)
- Same features as the DPM, but without label dispensing and backing paper rewinding function

ALX 92x

- Dispensing printing machine, based on the DPM.
- Same features as the DPM, with separate labelling material unwind and rewind unit.
- Mounting on a tripod
- ALX 92x AI Pro contains additionally:
  - Applicator Interface AI Pro for a maximum over all output current of 4 A
  - Separate power supply for the Applicator Interface

Options (DPM Gen. 2 / ALX 92x Gen. 2)

➠ This section counts for machines, which are equipped with CPU boards A2292 or A2293.

Realtime clock

To add any production dates to the label layout (e.g. best off date). The real-time-clock is a standard for DPM and PEM.

USI board

Universal Signal Interface (USI) board, available with 5V or 24V signal voltage and 4 inputs as well as 7 outputs. A USI test box is available.

For details refer to the service manual, topic section „Electronics Gen. 2“, chap. USI Board 🗋 on page 12.

Applicator Interface (AI)

Programmable applicator interface, designed to control nearly all applicator types. The AI can be integrated into the ALX 92x. For application with the DPM, an external applicator box is available.

For details refer to the service manual, topic section Applicator Interface 🗋.

Applicator-PLC

(ALX 92x only) PLC for control of Avery applicators of the types LTP/LTPV/LTSI.

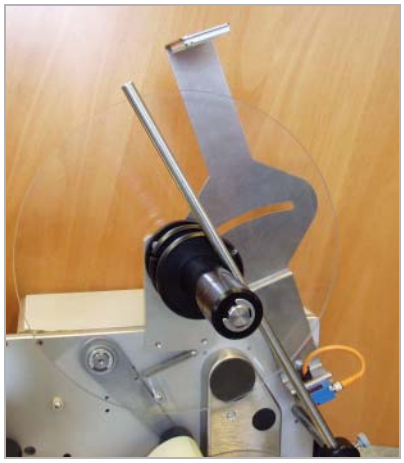
Options board

Provides an additional serial interface (COM2) and a keyboard connector (PS/2).

For details refer to the service manual, topic section „Electronics Gen. 2“, chap. Option Board 🗋 on page 11.

For details about keyboard application read the user manual, topic section „Advanced Applications“, chap. Standalone Operation 🗋 on page 8.

OD control



[1] Right: OD control mounted.

(ALX 92x only)
The „Outer diameter (OD) control“ for the label roll detects early if the machine is going to run out of labelling material - how early this happens can be adjusted. The application of the OD control requires a USI, which provides a warning signal as soon as the roll OD falls below the set value.

For details refer to the service manual, topic section „Electronics Gen. 3“, chap. OD control sensor (ALX) 🗋 on page 42.

Options (DPM Gen. 3 / PEM / ALX 92x Gen. 3)

➠ This section counts for machines, which are equipped with CPU board A6621.

➠ The optional boards can not be combined arbitrarily (Tab. 1).

Boards	Centronics	I/O	USI	AI	CF	RFID
Centronics		no	yes	yes	yes	yes
I/O	no		yes	yes	yes	yes
USI	yes	yes		no	yes	yes
AI	yes	yes	no		yes	yes
CF	yes	yes	yes	yes		yes
RFID	yes	yes	yes	yes	yes	

[Tab. 1] Compatibility of optional interface boards:
yes = compatible
no = not compatible

2nd CompactFlash slot

Available as option on a separate daughter board.

See Service Manual, topic section „Electronics Gen. 3“, chap. CF daughter board 🗋 on page 11.

USI board

Universal Signal Interface (USI) board with 24 V signal voltage and 4 inputs as well as 7 outputs. A USI test box is available.

For details refer to the service manual, topic section „Electronics Gen. 3“, chap. USI Board 🗋 on page 16.

I/O board

- D-Sub 9 jack; second serial interface for RS-232/422/485; selectable by parameter setting, max. baud rate 115200
- D-Sub 15 jack providing I/O signals similar to the USI

For details refer to the service manual, topic section „Electronics Gen. 3“, chap. I/O Board 🗋 on page 32.

Applicator Interface (AI)

Programmable applicator interface, designed to control nearly all applicator types. The AI can be integrated into the ALX 92x (max. over all output current: 1 A; for a higher over all output current of up to 4 A choose the ALX 92x AI Pro). For application with the DPM, an external applicator box is available.

For details refer to the service manual, topic section Applicator Interface 🗋.

Applicator-PLC

(ALX 92x only) PLC for control of Avery applicators of the types LTP/LTPV/LTSI.

Applicators

Several Applicators is available for operation at the DPM/ALX 92x.

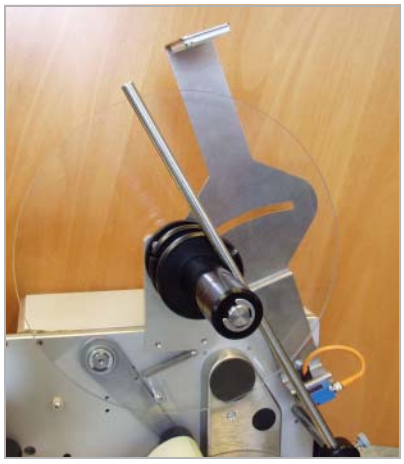
RFID read/write unit

Optional equipment for reading and writing labels with integrated RFID transponder.

Bar code verifier

Online bar code verifier (OLV). Checks the readability of the printed bar code and stops the printer in case of a negative result.

OD control



[2] OD control mounted.

(ALX 92x only)
The „Outer diameter (OD) control“ for the label roll detects early if the machine is going to run out of labelling material - how early this happens can be adjusted. The application of the OD control requires a USI, which provides a warning signal as soon as the roll OD falls below the set value (min. firmware: 5.31).

For details refer to the service manual, topic section „Electronics Gen. 3“, chap. OD control sensor (ALX) on page 42.

External control panel

[3] External control panel.

An external control panel can be connected in addition to the integrated control panel. An external control panel is useful if the standard control panel is difficult to access due to the position in which the unit is installed.

USB-Stick

All types of USB mass storage class devices connected to the USB host port are supported. Those are e. g. USB sticks (min. firmware: 5.31).

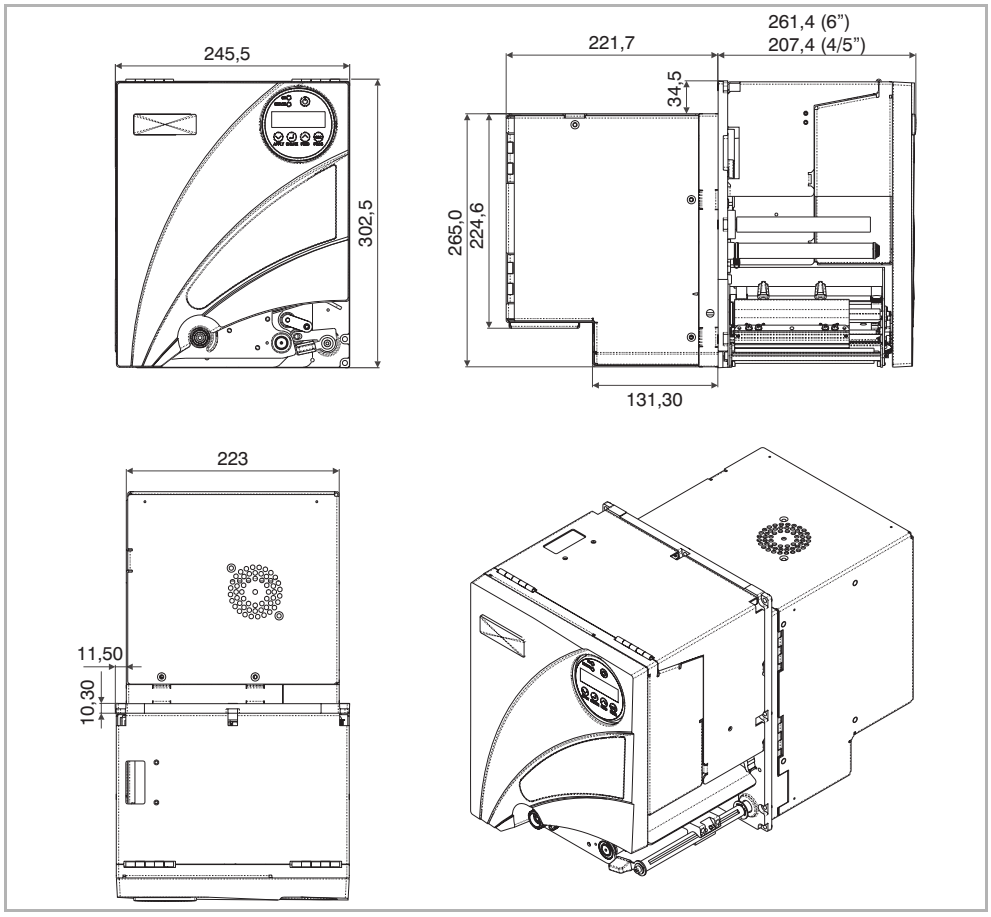
USB-Scanner

USB scanner can be operated at one of the USB host ports. Scanned data is interpreted as keyboard input (min. firmware: 5.31).

Technical specifications

Dimensions

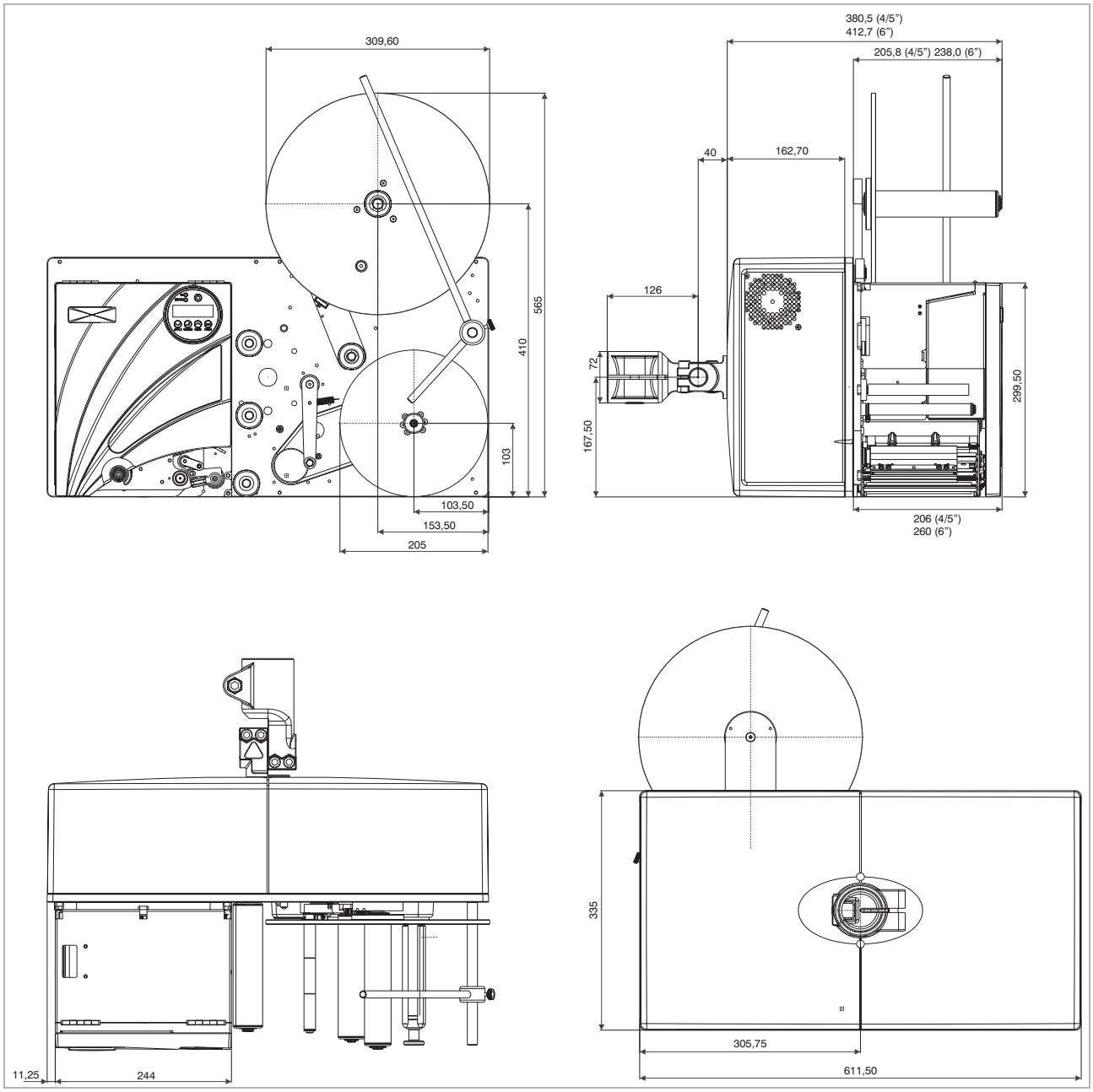
DPM / PEM



[4] Dimensions of the DPM as L-version. The PEM has the same measures.

Dimensioned drawings of the DPM / PEM in DXF format (Autocad) can be found on the Documentation-CD in directory „\Dimensional Drawings“.

ALX 92x



[5] Dimensions of the ALX 92x (L-version).

Dimensioned drawings of the ALX 92x in DXF format (Autocad) can be found on the Documentation-CD in directory „\Dimensional Drawings“.

Weight

Machine	Weight
DPM / PEM 4“/5“	17 kg
DPM / PEM 6“	18 kg
ALX 924/925	35 kg
ALX 926	39 kg
ALX 924/925 AI Pro	38 kg

[Tab. 2] Weights of DPM / PEM and ALX 92x.

Machine	Weight
ALX 926 AI Pro	42 kg

[Tab. 2] Weights of DPM / PEM and ALX 92x.

Performance data

Print technology

Thermal direct printing, thermal transfer printing

Print head

„Near Edge Type“ print head, high-definition, fast, with integrated temperature control, easy to replace

Resolution

12 Dot/mm (300 dpi)

Print speed
Print width

Machine	Print speed	Print width
DPM 4“		
PEM 4“	50 bis 400 mm/s (16 inch/s)	106 mm
ALX 924		
DPM 5“		
PEM 5“	50 bis 400 mm/s (16 inch/s)	127 mm
ALX 925		
DPM 6“		
PEM 6“	50 bis 300 mm/s (12 inch/s)	160 mm
ALX 926		

[Tab. 3] Print speed and print with of DPM /PEM and ALX92x.

Unit interval: 5 mm/s or 1 inch/s (0.2 inch/s with Easy-Plug #PR command)

CAUTION! - Disregarding the following limitations will have negative effects on the print result and/or on the machine function:

Devices with 6“ print width: The maximum print speed of 300 mm/s can only be used under certain limitations. Limiting factors are:

- Material width
- Core diameter of the material roll
- Diameter of the ribbon roll

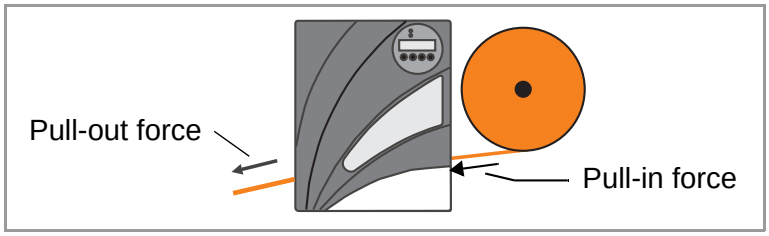
See (Tab. 12) to (Tab. 13).

If *huge ribbon rolls* (run length of 1000 m) are supposed to be used with activated ribbon economy function, limitations of both, print speed and ribbon brake setting must be considered ! Disregard of those limitations can cause the ribbon to tear off!

See (Tab. 6) and (Tab. 7).

Pull-in force, pull-out force

(DPM, PEM only)



[6] Pull-in force, schematic.

➠ The maximum difference between pull-in and pull-out force may be 9 N.

➠ The pulling forces in the label web must be applied evenly.

Example: The unwinder brakes with 10 N. Then, the rewinder may pull with a force in the range of 1 to 9 N (given that the backing paper is strong enough not to tear off).

Punch detection

- DPM, ALX 92x: Self-initializing light-through sensor for punched label material.
- PEM: Self-initializing combination sensor, which can detect punches as well as reflex marks on the material bottom side.

	Module width	Light-through sensor	Reflex sensor a)
Setting range b)	4“/5“	2-80 mm	2-80 mm
	6“	2-100 mm	2-100 mm

[Tab. 4] Setting ranges for punch and reflex sensors.

a) Only with PEM (material bottom side).
b) Measured: lay edge to sensor center.

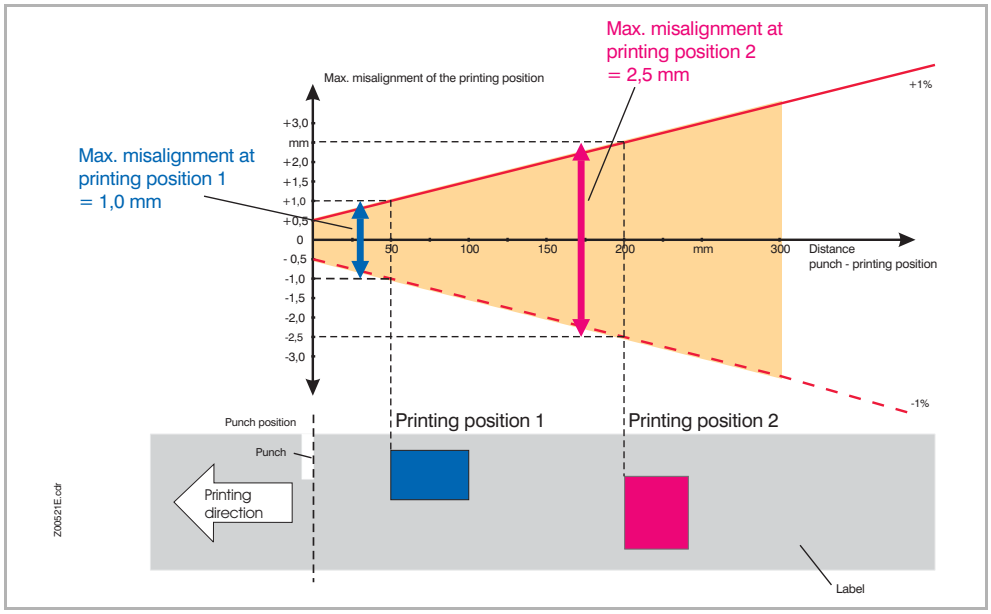
Punch position and size see Punch measures 🗋 on page 16.

Impression accuracy

- In printing (y-) direction:

  The impression accuracy depends on the print position. With the printout starting directly at the punch position, the accuracy is ±0.5 mm. A distance between punch (that is label start) and print position will add ±1% of this distance to the accuracy fault (see fig. [7]).

- X-direction: ± 0.5 mm.



[7] Impression accuracy in printing direction, depending on the printing position.

Output modes

1:1 and 100% printable.

Non-printable areas:

- 1 mm from the front label edge (1st edge in feed direction)
- 1 mm from the left band border (right border in feed direction)

Interpreter

Easy Plug, Line Printer, Hex Dump

Character sets

- 17 Fixfonts including OCR-A and OCR-B
- 3 scalable fonts
- Truetype fonts are supported

Character modification

Scaling in X/Y direction up to factor 16

Rotation:

- Resident fonts, bar codes, lines and graphics: 0, 90, 180, 270 degrees
- Truetype fonts: 0 to 359.9 degrees

Bar codes

Codabar	Code 128 A, B, C
Code 128	Code 128 UPS
Code 128 pharmacy	ITF
Code 2/5 matrix	MSI
Code 2/5 interleaved	EAN 13 add-on 2
Code 2/5 5-line	EAN 13 add-on 5
Code 2/5 interleaved ratio 1:3	EAN 128
Code 2/5 matrix ratio 1:2,5	Postcode (guide and identity code)
Code 2/5 matrix ratio 1:3	UPC A
Code 39	UPC E
Code 39 extended	Code 93
Code 39 ratio 2,5:1	
Code 39 ratio 3:1	

All bar codes scalable in 30 different width and in the height.

2-dimensional bar codes

Data Matrix Code (code according to ECC200)
Maxi Code
PDF 417
Codablock F
Code 49
QR Matrix Code

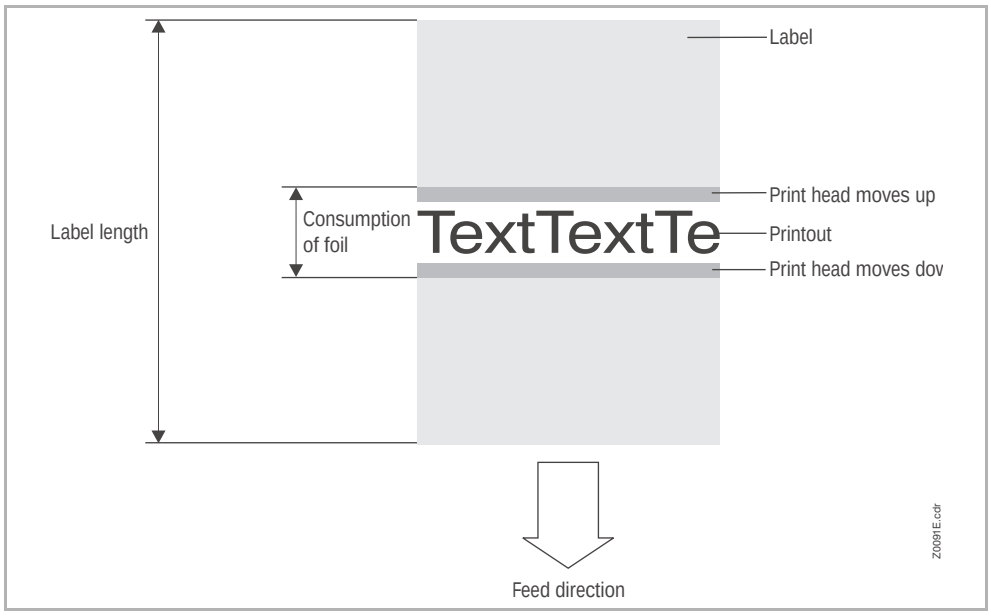
GS1 Databar & CC bar codes

Reduced Space Symbology (GS1 Databar) und Composite Component (CC) bar codes:

GS1 Databar-14	UPC-A + CC-A/CC-B
GS1 Databar-14 truncated	UPC-E + CC-A/CC-B
GS1 Databar-14 stacked	EAN 13 + CC-A/CC-B
GS1 Databar-14 stacked omnidirectional	EAN 8 + CC-A/CC-B
GS1 Databar limited	UCC/EAN 128 + CC-A/CC-B
GS1 Databar expanded	UCC/EAN 128 + CC-C

Automatic ribbon economy

In regular print mode, ribbon is fed simultaneously with the labelling material. The automatic ribbon economy (= „ribbon saving“) stops the feeding of the ribbon if there are label areas of a certain size without imprinting. As a result, ribbon is saved (see Fig. [8]).



[8] Ribbon (Foil) consumption when printing labels with a small imprinting area and activated automatic ribbon economy. Ribbon consumption is slightly higher than the length of the imprinted area.

The effect of ribbon saving depends on the print speed. The reason for this is the up and down movement of the print head as well as the acceleration and slowing-down of the ribbon. Generally said: With a high print speed, less ribbon is saved as with a low print speed (Tab. 5).

Cutting or dispensing applications can additionally deteriorate the effect of ribbon saving.

Activating ribbon saving

Activate the automatic ribbon economy by selecting parameter SYSTEM PARAMETERS > Ribbon autoecon..

Set the minimum distance between two print areas from which on ribbon saving should be activated with parameter SYSTEM PARAMETERS > Ribbon eco. limit.

For detailed information refer to topic section Info-printouts and Parameters.

Print speed in mm/s (Inch/s)	Minimum length of unprinted area in mm	Consumed ribbon per saving action in mm
51 (2)	3.7	1.2
76 (3)	4.6	1.9
102 (4)	5.9	3.1
127 (5)	7.4	4.4
152 (6)	8.9	5.9
178 (7)	11.1	7.6

[Tab. 5] The amount (length) of consumed ribbon per saving action (lifting and lowering of the print head) increases with the print speed.

Print speed in mm/s (Inch/s)	Minimum length of unprinted area in mm	Consumed ribbon per saving action in mm
203 (8)	14.1	9.5
229 (9)	17.6	11.3
254 (10)	21.3	13.6
279 (11)	25.3	15.9
305 (12)	30.0	18.5
330 (13)	34.5	21.2
356 (14)	39.9	24.2
381 (15)	45.6	27.3
406 (16)	51.3	30.5

[Tab. 5] The amount (length) of consumed ribbon per saving action (lifting and lowering of the print head) increases with the print speed.

CAUTION! - If huge ribbon rolls (run length of 1000m) are supposed to be used with activated ribbon economy function, there is a hazard of the ribbon tearing off.

➜ Consider the limitations according to (Tab. 6) and (Tab. 7)!

	Ribbon type 2240-600-...			
Ribbon width	**030**	**055**	**080**	**104**
max. print speed. (inch/s)	12	12	12	12
max print speed with ribbon economy activated (inch/s)	12	12	12	12
Release the ribbon brake ... turns [a)]	12	8	6	6

[Tab. 6] Limitations for ribbon type 2240-600-…, depending on the ribbon width.

a) Tighten the red hex nut at the unwind mandrel to the limit and then loosen it the indicated number of turns.

	Ribbon type 2240-1000-…			
Ribbon width	**030**	**051**	**080**	**102**
max. print speed. (inch/s)	12	12	12	12
max print speed with ribbon economy activated (inch/s)	12	10	9	6
Release the ribbon brake ... turns [a)]	12	8	6	6

[Tab. 7] Limitations for ribbon type 2240-1000-…, depending on the ribbon width.

a) Tighten the red hex nut at the unwind mandrel to the limit and then loosen it the indicated number of turns.

For details on setting the ribbon brake refer to the user manual, topic section „Setup“, paragraph „Settings“, “Ribbon tautness“.

Labelling material

Material types

- *DPM/ALX 92x*: All common self-adhesive labelling materials, suitable for printing in thermal direct and thermal transfer process.
- *PEM*: All common cardboard and self-adhesive labelling materials, suitable for printing in thermal direct and thermal transfer process.

Material roll

(ALX 92x only)

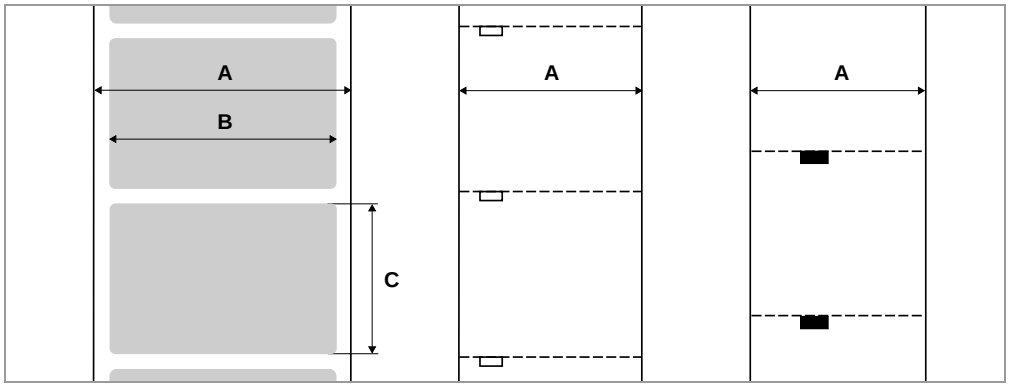
- Max. outer-Ø 300 mm
- Inner-Ø 1,5“ (38 mm), with adapter rings 3“ (76 mm) or 4“ (102 mm)
- Maximum admissible roll weight: 12 kg

Backing Paper

(DPM/ALX 92x only)

Maximum admissible weight of the wound up backing paper: 5 kg

Material measures

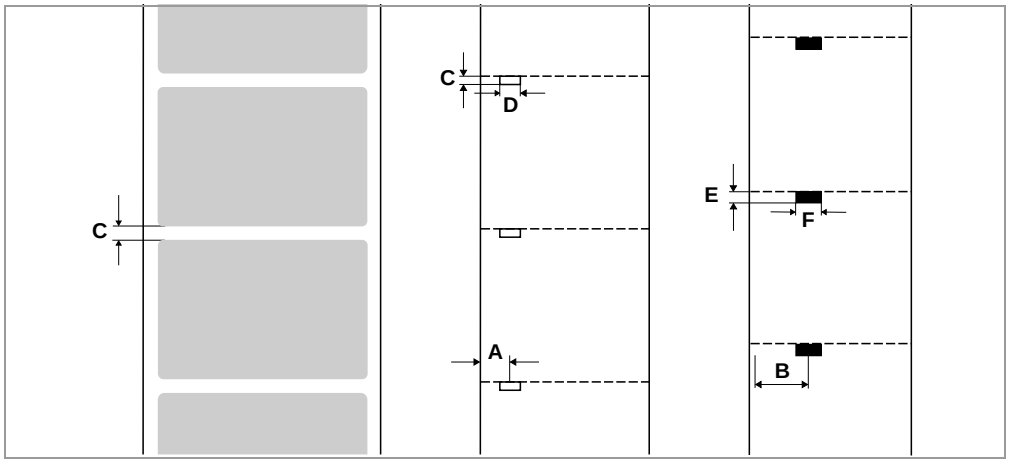


[9] Material measures:
A Material width
B Label width
C Label length

Machine	Material width	Label length
DPM 4/5“	16-136	5-1000
DPM 6“	16-190	
PEM 4/5“	16-136	10-1000
PEM 6“	16-190	
ALX 924/925	16-130	5-1000
ALX 926	16-184	

[Tab. 8] Label measures in mm.

Punch measures



[10] Punches and reflex marks at different material types.
- **A** Punch position
- **B** Reflex mark position (PEM only)
- **C** Punch length
- **D** Punch width
- **E** Reflex mark length
- **F** Reflex mark width

Item	Machine	Punch		Reflex mark [a]	
Position (mm)	4“/5“	2-80	[10A]	2-80	[10B]
	6“	2-100		2-100	
Length (mm)	all	0.8-14	[10C]	4	[10E]
Width (mm)	all	min. 4	[10D]	12	[10F]

[Tab. 9] Measures of punches and reflex marks.

a) PEM only (bottom side of material).

Thermotransfer ribbon

Ribbon type

The following recommendations are given for thermotransfer ribbons:

- The ribbon reverse must have an anti-static and friction-reducing coating (backcoating).
- Ribbons must be specified for "Near Edge Type Print Heads" .
- Ribbons should be suitable for print speeds of up to 12 inch/sec.

Ribbon roll

- Max. outer-Ø: 105 mm (equals 1000 m Avery 2240 standard ribbon on a 40.2 mm ribbon core))
- Inner-Ø: 1“ (25.4 mm) or 1,6“ (40.2 mm ±0,2) with ribbon mandrel adapter.

CAUTION! - If huge ribbon rolls (run length of 1000 m) are supposed to be used with activated ribbon economy function, there is a hazard of the ribbon tearing off.

➜ Consider the limitations according to (Tab. 6) and (Tab. 7)!

Read Limitations on page 23 for details.

See Automatic ribbon economy on page 13 for details.

Ribbon width	The ribbon should overlap the label material some milimeters.

Mechanical features

Dispensing edge	(DPM/ALX 92x only) Adjustable for direct or indirect dispensing mode.
Label drive	Forward and backward movement of labelling material for real 1:1 applications and full size print of labels
Label web tension	(DPM/ALX 92x only) Easy-to-adjust, patented reliable friction mechanism
Ribbon tension	Adjustable by disc-brakes at the unwind- and rewind-mandrel.
Label sensor adjustments	Mechanical via thumb wheel with position indicator, electronical setting via display function
Material unwind	(ALX 92x only) Dancer arm for smooth unwinding of labelling material, label reel unwind with integrated friction brake
Material rewind	(ALX 92x only) Stepper-motor driven rewind mandrel

Connection, device data

Protection category	I
Mains voltage	100-240 V (AC)
Mains frequency	60-50 Hz
Power consumption	450 W
Input current	3.5 -1.5 A ALX 92x AI Pro: • 2.0-1.2 A at connection „Mains 1“ • 1.5-0.7 A at connection „Mains 2“

Ambient conditions

Operating temp.	+5 to +35°C (ALX 926: +5 to +30°C)
Storage temp.	-20 to +70°C
Humidity	45 to 75%, non-condensing
Protection class	IP 21
Noise	70 dB(A)

Interfaces (DPM Gen. 2 / ALX 92x Gen. 2)

➠ This section counts for machines, which are equipped with CPU boards A2292 or A2293.

- Parallel interface
  – Centronics
  – Bi-directional mode (nibble mode), conforms with IEEE 1284
- Serial interface (Com1)
  – RS 232 *or* RS 485/422
  – Selectable in the parameter menu
  – Max. baud rate 115200
- *Optional*: 2nd serial interface (Com2)
  – RS 232
  – Max. baud rate 115200
- *Optional*: Ethernet Interface (integrated on CPU board)
  – RJ 45
  – 10/100 Base T, with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD, SNMP
- *Optional*: Universal Signal Interface USI
- *Optional*: Applicator Interface AI; controls nearly every available applicator type
- PS/2 keyboard connector for use in standalone mode and for input of variable print data (optional board)
- *Optional*: Connection for Avery applicators (via USI+SPS or AI)

Interfaces (DPM Gen. 3 / PEM / ALX 92x Gen. 3)

➠ This section counts for machines, which are equipped with CPU board A6621.

➠ The interfaces can not be combined in any way (Tab. 10)!

	Centronics	2. RS 232/422/485	USI	AI	CF (zweite)	RFID
Centronics		NO	yes	yes	yes	yes
2. RS 232/422/485	no		yes	yes	yes	yes
Signale (USI)	yes	yes		no	yes	yes
AI	yes	yes	NO		yes	yes
CF (zweite)	yes	yes	yes	yes		yes
RFID	yes	yes	yes	yes	yes	

[Tab. 10] Combinability of interface boards.
yes = can be combined
no = can not be combined

- USB interface
  – USB 1.1
  – 2 USB-A host ports
  – 1 USB-B device port (full speed)
- Serial interface (Com1)
  – RS 232
  – Max. baud rate 115200
- *Optional:* 2nd serial interface (Com2)
  – RS 232 *or* RS 485/422
  – Selectable in the parameter menu
  – Max. baud rate 115200

  ➠ The 2nd serial interface (I/O board) can *not* be installed, if a Centronics daughter board is already installed.
- Parallel interface (daughter board)
  – Centronics
  – Bi-directional mode (nibble mode), conforms with IEEE 1284 B

  ➠ The Centronics daughter board can *not* be installed, if an I/O board (2nd serial interface) is already installed.
- Ethernet Interface
  – RJ 45
  – 10/100 Base T, with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD, SNMP

- *Optional:* Universal Signal Interface USI
  24 V signal voltage

  ➠ The USI board can *not* be installed, if an AI board is already installed.
- *Optional:* Applicator Interface AI
  Controls nearly every applicator type

  ➠ The AI board can *not* be installed, if an USI board is already installed.
- Connection for remote operation panel
  – Mini-DIN 6
  – RS 485
- *Optional:* Connection for Avery applicators (via USI+SPS or AI)

  Pin assignments can be found in topic section Electronics 🗋.

Electronics (DPM Gen. 2 / ALX 92x Gen. 2)

➠ This section counts for machines, which are equipped with CPU boards A2292 or A2293.

Processor	64 Bit IDT MIPS
RAM	16 MB (extendable to max. 80 MB)
ROM	2 MB
Plug-in cards	Slot for CompactFlash cards (T1) up to 128 MB
Realtime clock	Optional

Electronics (DPM Gen. 3 / PEM / ALX 92x Gen. 3)

➠ This section counts for machines, which are equipped with CPU board A6621.

Processor	32 Bit AMD MIPS
RAM	64 MB
ROM	4 MB
Plug-in cards	• 1 Slot for CompactFlash cards I/II (standard) • 1 Slot for CompactFlash cards I/II (optional) • 1 Slot for SD/MMC cards (standard, is not supported yet)
Realtime clock	Standard

External Sensors

Start sensor	Connection to USI or AI
OD sensor	➠ Only for ALX 92x Connection to USI

Operation

Operation panel	• (DPM Gen. 2 / ALX 92x Gen. 2) – 4-key control panel – 2-line, 32-figure, illuminated LCD display (5 mm character height) • (DPM Gen. 3 / PEM / ALX 92x Gen. 3) – 5-key control panel – graphical, 128 x 32 Dot, illuminated LCD display
Settings	Definition of parameters using menu or Easy Plug commands

Status messages / Test functions

Test printouts	Printouts for parameter settings, adding logo and font, line and bar code library
Test functions	Print tests, test routines for memory and sensors, interface test
Error reports	Display of error reports on the display, continuation of print jobs without label loss
Warnings	Ribbon roll nearly used up
Dot check	Checks the printhead on defective dots – automatically or manually

Test certificates

CE

The devices conform with the following EC-directives:

- EMC
- Low-voltage

For details refer to the EC Declaration of conformity

TÜV GS

TÜV GS test certificate: Tested safety (according to EN 60950:00)

EMV

The EMC test was made according to the following norms:

- EN 55022 - Class A
- EN 55024
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-6-2

➠ The norm EN 55022 prescribes the following warning note to be included in the operation manual for devices of class A:

Warning! This is class A equipment. This equipment may cause radio disturbances if it is used in a living area; in those cases can be demanded of the manufacturer to carry out appropriate measures.

FCC

➠ FCC Regulations require the following wording for Class A devices:

„WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to local radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.“

IC

➠ IC (Industry Canada) requires the following wording for Class A devices:

„CANADIAN D.O.C. WARNING

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Réglement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.“

Limitations

DPM 6“

Rewinder construction

Consider the following critical points, when building a rewinding unit for the DPM:

- The rewinder must be fast enough to rewind the backing paper tight even when printing at high speeds.
- There must always be a light tension on the backing paper.

ALX 926

Print speed

Material width in mm up to:	-184	-160	-130	-100
max. print speed (”/s), given a 4” core	10	10	12	12
max. print speed (”/s), given a 3” core	8	9	10	12
max. print speed (”/s), given a 1.5” core	7	9	10	12

[Tab. 11] Maximum print speed for material rolls with 300mm outer diameter, depending on the material width as well as the core diameter.

Material width in mm up to:	-160	-130	-104	-80	-55
max. print speed (”/s)	12	12	12	12	12
max. print speed (”/s) with activated ribbon autoeconomy function	10	10	12	12	12

[Tab. 12] Maximum print speed for foil rolls with 600m length, depending on the material width.

Material width in mm up to:	-160	-130	-104	-80	-55
max. print speed (”/s)	10	10	12	12	12
max. print speed (”/s) with activated ribbon autoeconomy function	6	6	8	10	10

[Tab. 13] Maximum print speed for foil rolls with 1000m length, depending on the material width.

Printable area

CAUTION! - Disregarding the following notes may cause the machine to work unproper.

➜ Do not heat up more than 50% of the print head dots at a time. This means, that lines which are running crossways to the printing direction may only cover half of the maximum print width. The other half of the label may not be printed on in this area.

➜ Those lines may not exceed a line width of 3mm

Ambient conditions

The ALX 926 may only be operated at a mains voltage of 220V or higher. The operating temperature may not exceed 30°C.